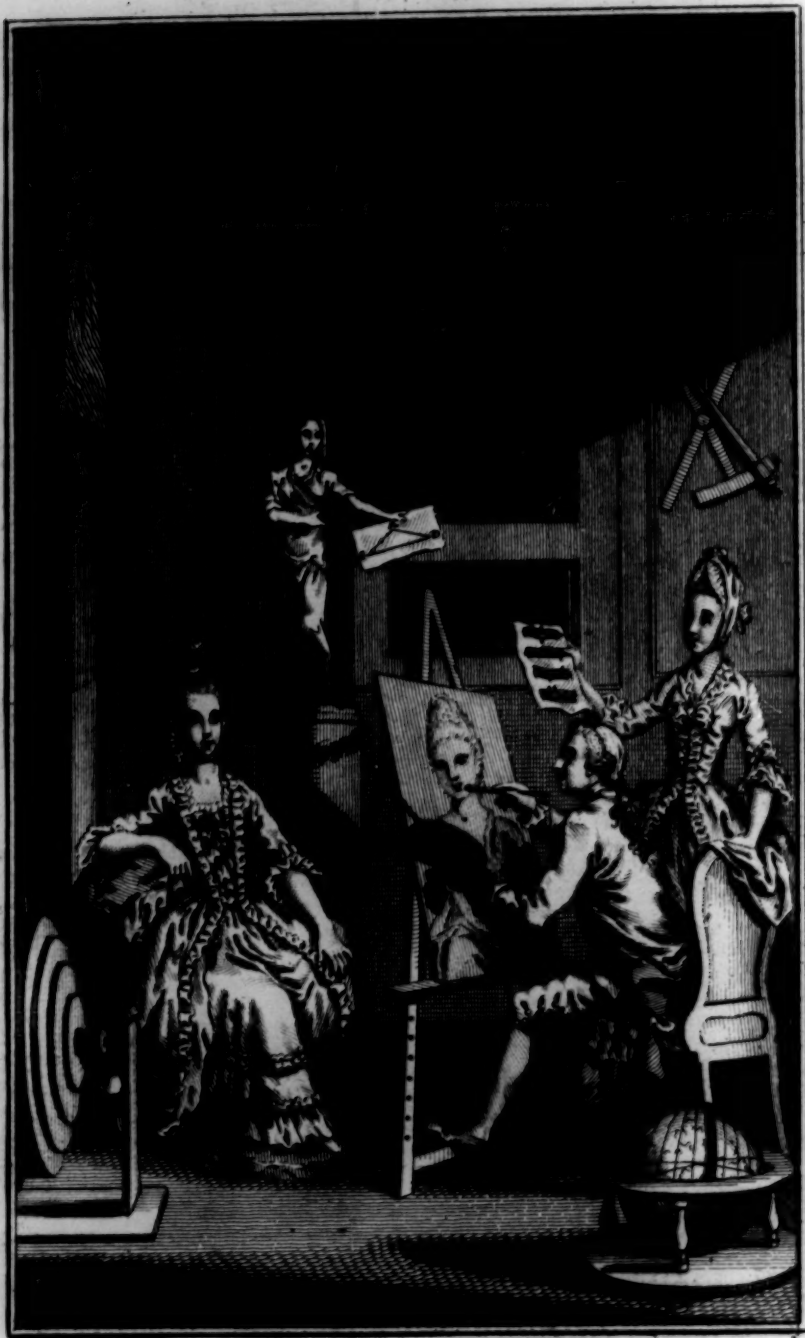
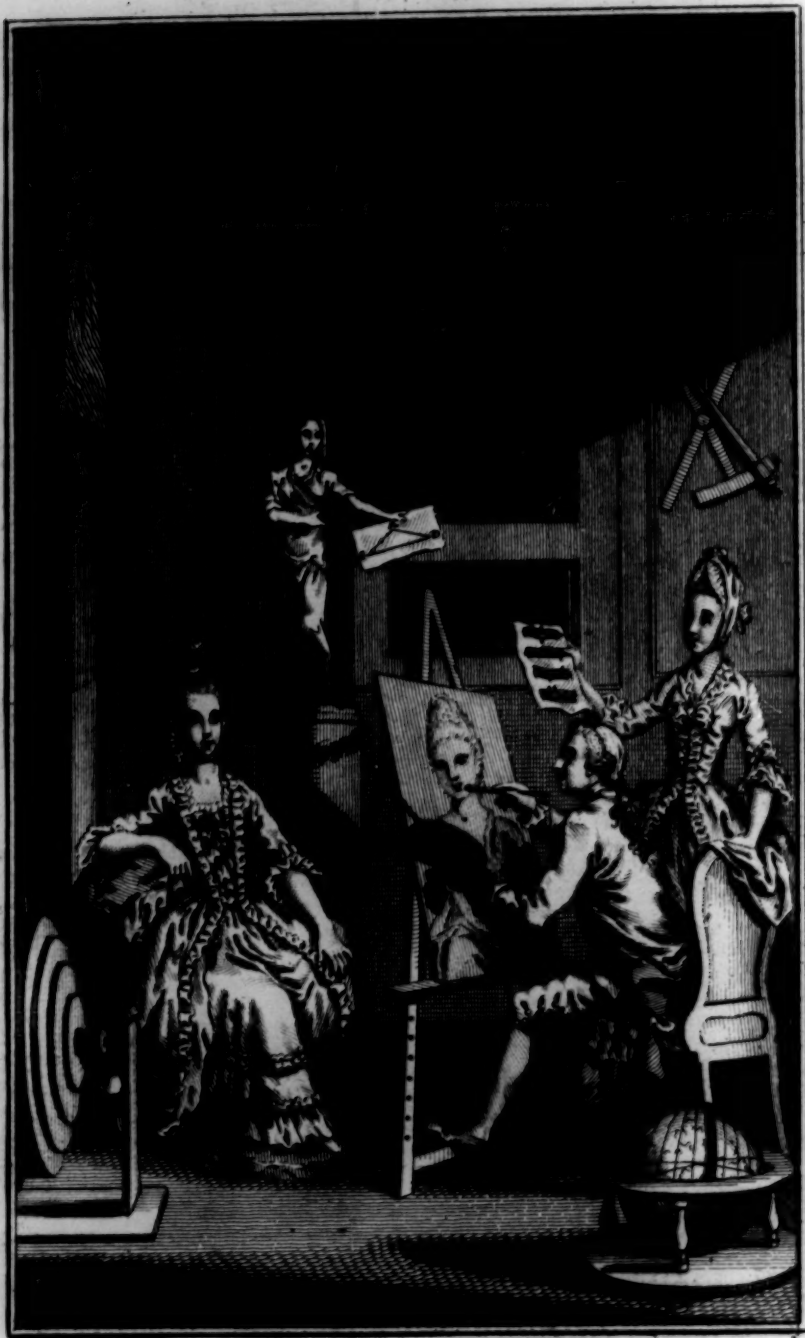


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MDCCLXXIV.



THE MODERN DICTIONARY OF ARTS AND SCIENCES.

☞ *Those Articles which are marked thus * are totally omitted in every other Dictionary of Arts and Sciences.*

A

A, The first letter of the alphabet in Latin, English, French, and most of the present languages of Europe. It has deservedly the first place on account of its simplicity, very little more being necessary to its pronunciation than opening the mouth. As a vowel it has in English a three-fold sound: short, as in *bat, cat, &c.* long, as in *date, fate, late, &c.* and obscure as in *call, fall, &c.*

In the Julian calendar, A is the first of the dominical letters. It was also of use in the Roman comitia, or assemblies, for making laws, when the people had two tables given them: on the one were the two letters, U. R. *uti regas*, implying their assent; because a motion for a new law was called *rogatio*: on the other the letter A, *antiquo, or antiquam volo*, to signify their dissent. In capital cases also they had two tables covered with wax, on one of which was the letter A, for *absolvo*; and on the other C, for *condemno*: whence the former is called by Cicero *salutaris*, and the latter *tristis*.

A is also an abbreviation, and often found in modern writers; as A. D. for *anno domini*, A. M. *artium magister*, master of arts, &c. Among logicians, A is used to denote an universal affirmative proposition.

A, *a*, or *aa*, is used by physicians as an abbreviation of *ana*, and signifies an equal No. I.

A B A

quantity of the ingredients that immediately precede it in the prescription.

AAM, a measure for liquids used at Amsterdam, containing about sixty three pounds averdupois weight.

AB, the eleventh month of the civil year of the Hebrews, and the fifth of their ecclesiastical year, which begins with the month Nisan. It answers to the moon of July; which is part of our month of the same name, and to the beginning of August: it consists of thirty days. On the first of this month, the Jews fast in memory of Aaron's death; and on the ninth of this month, because on that day the temple of Solomon, and that erected after the captivity, were burnt; the former by the Chaldeans, and the latter by the Romans. The same day is likewise remarkable among the Jews for the publication of Adrian's edict, whereby they were forbid to continue in Judea, or even to look back at Jerusalem, in order to lament the desolation of that city. The eighteenth of the same month is also a fast among that people; because the lamp in the sanctuary was that night extinguished, in the time of Ahaz.

ABACOT, the name of a cap of state, formerly worn by the kings of England: the superior part of it formed a double crown.

B

ABACUS,

A B A

ABACUS, in architecture is the superior member of the capital, to which it serves as a kind of crown. It was originally intended to represent a square tile laid over a basket, an accident which Vitruvius tells us gave occasion to Callimachus, an ingenious statuary of Athens, to invent the first regular order of architecture.

The abacus still retains its original form in the Tuscan, Doric, and Ionic orders: but in the Corinthian and Composite, its four sides or faces are arched inwards, having some ornament, as a rose, or other flower, in the middle.

ABACUS, is a term also used for a concave moulding on the capital of the Tuscan pedestal. And Andrea Palladio calls the Plinth above the echinus, or bouldin in the Tuscan and Doric orders by the same name.

ABACUS, among the ancient mathematicians, signified a table covered with dust, on which they drew their diagrams; the word, in this sense, being derived from the Phœnician *abat*, dust.

ABACUS *Pythagoricus*, the common multiplication table; so called from its being invented by Pythagoras.

ABAST, a naval term, signifies towards the stern. Thus, when anything is said to be abast the mizzen-mast, it implies that the object is between the mizzen-mast and the stern.

ABAPTISTON, in surgery, signifies the perforating part of the trepan; because it is prevented from sinking suddenly into the skull and wounding the brain.

* **ABAS**, in heathen mythology, the son of Hypothon and Meganira, who entertained Ceres, and offered a sacrifice to that goddess; but Abas ridiculing the ceremony, and abusing her, she sprinkled him with a certain mixture she held in her cup, on which he became a water-lizard.

ABAS, a weight used by Persian merchants in weighing pearls. It is one eighth less than the European caratt.

ABASED, *abasse*, in heraldry, is applied to the wings of eagles, &c. when the extremity points downwards to the point of the shield, or when the wings are shut: the natural way of bearing them being extended.

To **ABATE**, (French *abbatre*, to pull down, overthrow, or demolish) a term used by lawyers, both in an active and neutral sense; as to abate a castle, is to beat it down. To abate a writ is, by some exception, to defeat or overthrow it. A stranger abateth; that is, entereth up-

A B B

on a house or land void by the death of him that last possessed it, before the heir takes possession, and so keeps him out; wherefore, as he that putteth out him in possession is said to disseize; so he that steppeth in between the former possessor and his heir, is said to abate. In the neuter signification thus; the writ of the defendant shall abate; that is, shall be disabled, frustrated, or overthrown. The appeal abateth by covin; that is, the accusation is defeated by deceit.

To **ABATE**, in the manege, signifies the performing any downward motion properly. Thus a horse is said to abate or take down his curvets, when he puts both his hind legs to the ground at once, and observes the same exactness in all the times.

ABATEMENT, in heraldry, signifies something added to a coat of arms, in order to lessen its true dignity, and point out some imperfection, or stain, in the character of the wearer.

ABATOR, in law, is one who enters a house or lands void by the death of the last possessor, before the true heir.

ABBESS, the superior of an abbey, or convent of nuns, who enjoys the same privileges over them as the abbots over their monks. Her sex does not indeed allow an abbess to perform the spiritual functions annexed to the priesthood; but there are instances of some abbesses who have the privilege of commissioning a priest to act for them.

ABBEY, a religious house or place, where persons retire from the world to spend their time in solitude and devotion.

—The wonderful esteem such men formerly acquired, procured them very large privileges, exemptions and riches, which they drew from the people by the invention of masses for the living and the dead, dispensations, jubilees, indulgencies, &c.

* **ABBEYS**, dissolution of in England in 1536, in the reign of Henry VIII. As the monks had slandered Henry the Eighth in many particulars, and even debauched a great number of his subjects from their allegiance, he, after having deliberated with his council, ordered a general visitation of the monasteries, that strict enquiry might be made into their titles, revenues, the morals of the friars and nuns, and the regulations observed in each order. By this expedient he foresaw he should be able to undeceive the public in their opinion of the sanctity of such characters, and wreak his revenge upon the monks, whom he considered as his implacable enemies, and augment his revenue with

with their spoils. Thomas Cromwell, being chosen visitor-general, appointed substitutes for the examination of the monasteries, where they found such irregularities, and scenes of vice, delinquency, and imposture, as were disgraceful to religion, and indeed shocking to human nature. The examiners, who were by no means friends to monastic institutions, did not fail to exaggerate those particulars in their reports. They first threatened the delinquent friars and nuns with all the severity of the law, and then insinuated, that, in order to avoid punishment, and conceal the disorders they had committed, they should resign their houses to the king, who would take care to provide for the subsistence of every individual. This advice was followed by a great number of priors, with the concurrence of their monks; and the report of the commissioners was published, that the world might see there was an absolute necessity for such a general visitation. Then appeared a minute detail of the most surprising enormities. Many convents were rent into factions, which exercised the most barbarous cruelties upon one another, as they chanced to predominate. They carried on an idolatrous traffic, by imposing upon the superstitious people with relics and images. In some houses the visitors found the implements of clipping and coining. The majority of the nuns in many nunneries were pregnant; a great number of abbots and monks were convicted of criminal correspondence with harlots and married women; and, not a few detected in the gratification of unnatural lusts, and other brutal practices. After this publication, the king, as the head of the English church, absolved of their vows all the monks who had engaged in a religious life before the age of four and twenty; and permitted all the rest to quit their monasteries, and live as seculars, according to their own pleasure. But this permission producing very little effect, Henry had recourse to other measures. The parliament had impowered the king to nominate two and thirty persons, to make a collection of ecclesiastical constitutions; and now that act was confirmed. The king represented to the parliament in this session, that the great number of monasteries was an expence to the kingdom, and desired them to apply some remedy to this evil: in consequence of which remonstrance, they passed an act, suppressing all monasteries, whose revenues did not exceed two hundred pounds; and appropriated their income for his majesty's use. By this

law, the crown acquired the yearly value of two and thirty thousand pounds, besides a capital of above one hundred thousand pounds, on the plate, ornaments, and effects of churches and convents. Then he erected a new court of justice, called the court of the augmentation of the king's revenue, for taking cognizance of all such sequestrations. The clergy met in convocation, proposed, that a new translation of the Bible into the English language should be made, and published for the sake of those who did not understand Latin; and though this motion was vehemently opposed by Gardiner, and his party, Cramer carried his point. The king was petitioned to employ some capable persons to translate the scriptures; the queen seconded the petition, with which Henry complied; and though we know not who the translators were, the work was in three years, printed at Paris. Henry having obtained all he wished from the parliament, dissolved that assembly, after it had continued sitting six years a longer term than parliament had ever subsisted since the beginning of the English monarchy.

ABBOT, the superior of an abbey or convent of monks. In the first ages of christianity, abbots were men of great plainness and simplicity, contented with the government of their own monasteries, without pretending to any share in ecclesiastical affairs. But being called from these obscure retreats to oppose the heresies which too often appeared in the church, they became ambitious of power, and endeavoured to render themselves independent of the bishops. It was however some time before they could carry their point of independency; but having succeeded in that attempt, they soon obtained the title of lord, together with other badges of episcopal authority, particularly the mitre. Hence arose new species of distinctions between the abbots; those were termed mitred abbots, who were privileged to wear the mitre, and exercise episcopal authority within their respective precincts. Others were called crosiered abbots, from their bearing the crosier, or pastoral staff. Others were called æumenical, or universal abbots, in imitation of the patriarch of Constantinople: while others were termed cardinal abbots, from their authority over all other abbots.

The principal distinctions at present observed between abbots, are those of regular and commendatory. The former take the vow and wear the habit of their order: And the latter are seculars, though

A B B

they are obliged by their bulls to take orders when of proper age.

Before the reformation in England, there were elective and presentative abbots, some who were mitred, and some who were not. Those who were mitred had episcopal authority within their limits, being exempted from the jurisdiction of the bishop; while the others were subject to the diocesan in all spiritual government. The mitred abbots were lords of parliament, and called abbots sovereign and abbots general, to distinguish them from the other abbots. And as there were lords abbots, so there were also lords priors, who had exempt jurisdiction, and were likewise lords of parliament.

***ABBOT** (George) who was archbishop of Canterbury, was a sheerman's son, and born at Guildford in Surry, October 29, 1562. While his mother was pregnant with him, she is said to have had a dream, which really proved a means of his advancement: she fancied she was told in her sleep, that if she could eat a pike, the child she was pregnant with, would prove a son, and rise to preferment. Soon after this, in taking a pail of water out of the river Wey, she accidentally caught a pike. This coming to the ears of some persons of distinction, they offered to become sponsors for the child, which was gladly accepted; and afterwards they bestowed many favours on him when at school, and at the university of Oxford. He was master of University college, dean of Winchester, chancellor of Oxford, bishop of Litchfield and Coventry, then of London; and April 9, 1611, was translated to the archbishopric of Canterbury. Some time after this, the duke of Buckingham, who was his declared enemy, caused him to be suspended: he was at length however restored, but died soon after, on the fourth of August 1633, aged 71 years. He was one of the eight learned divines of Oxford, to whom the care of translating the New Testament was committed. He shewed himself in most circumstances of his life, a man of great moderation to all parties, and was desirous that the clergy should attract the esteem of the laity rather by the sanctity of their manners than their function.

ABBREVIATURE, or **ABBREVIATION**, the substitution of a syllable, letter, or character for a whole word. It is derived from *abbrevio*, to shorten.

ABBREVOIR, in masonry, certain indentures made in the joints or beds of stones, that the mortar or cement may, by filling these cavities, bind the work the firmer together.

A B D

ABBUTTALS, or **ABUTTALS**, (Fr. *aboutir*, to border upon) the buttings and boundings of land, either to the east, west, north, or south, shewing on whatever lands, &c. it abbutts. Camden observes, that limits were formerly distinguished by hillocks raised on purpose, which were called boten-tines; whence we have the word buttings.

ABCEDARY, or **ABCEDARIAN**, applied to compositions whose parts are disposed in alphabetical order.

ABDICATION, the action whereby a magistrate, or other person in office, renounces and gives up the same, before the term of service is expired.

This word is often improperly confounded with resignation, but differs from it; as abdication is done purely and simply; whereas resignation is in favour of some other person. It is said to be a renunciation, quitting and relinquishing, so as to have nothing further to do with a thing; or the doing of such actions as are inconsistent with the holding of it. When king James left the kingdom, and abdicated the government, the lords would have the word desertion made use of; but the commons thought it was not comprehensive enough; as the king might then have liberty of returning.

ABDOMEN, in anatomy, that part of the human body intercepted between the thorax and the pelvis.

The word is derived from *abdo*, to hide.

Anatomists divide the body into three great cavities, which they call bellies: the head or the upper belly; the thorax, or the middle belly; and the abdomen, or lower belly. The abdomen, says Winflow, begins immediately under the thorax, and terminates at the bottom of the pelvis of the *ossa innominata*. Its circumference, or outer surface, is divided into regions, of which there are three anterior, viz. the epigastric, or superior region; the umbilical, or middle region; and the hypogastric, or lower region. There is but one posterior region; named regio lumbaris. The epigastric region begins immediately under the appendix eniformis, at a small superficial depression, called the pit of the stomach, and in adult subjects ends above the navel, at a transverse line, supposed to be drawn between the last false ribs on each side. This region is subdivided into three parts, one middle, named, epigastrium; and two lateral, termed hypochondria. The epigastrium takes in all that space which lies between the false ribs of both sides; and the hypochondria are the places covered by the false ribs. The umbilical region begins in adults, above the navel,

at the transverse line already mentioned, and ends below the navel at another transverse line, supposed to be drawn parallel to the former, between the two crista of the ossa ilium. This region is likewise divided into three parts; one middle which is properly the regio umbilicalis; and two lateral, called ilia, or the flanks, and they comprehend the space between the false ribs and the upper part of the ossa ilium on each side. The hypogastric region is extended downward from the inferior limit of the umbilical region, and is divided into three parts, one middle, called pubes; and two lateral, called inguina, or the groins. The lumbar region is the posterior part of the abdomen, and comprehends all that space which reaches from the lowest ribs on each side, and the last vertebra of the back, to the os sacrum, and neighbouring parts of the ossa ilium. The lateral parts of this region are termed the loins; but the middle part has no proper name in men. Lastly, the bottom of the abdomen, which answers to the pelvis of the skeleton, is terminated anteriorly by the clunes, or buttocks, and anus. The buttocks are separated by a fossa, which leads to the anus, and each buttock is terminated downward by a large fold, which distinguishes it from the rest of the thigh. This lumbar region takes in likewise the musculus quadratus lumborum on each side, the lower portions of the sacrolumbares of the longissimi and latissimi dorsi, the musculus sacri, &c. The space between the anus and the parts of generation is called perineum, and is divided into equal lateral parts by a distinct line, which is longer in males than in females. The cavity of the abdomen, formed by the parts already mentioned, (all which are covered by the skin and membrana adiposa) is lined on the inside by a particular membrane, called peritonæum. It is separated from the cavity of the thorax by the diaphragm, and terminated below by the musculi levatores ani. This cavity contains the stomach and the intestines, which are commonly divided into three small, named duodenum, jejunum, and ilium; and three large called cæcum, colon, and rectum. It contains likewise the mesentery, mesocolon, omentum, liver, gall-bladder, spleen, pancreas, glands of the mesentery, vasa lactea, receptaculum chyli, kidneys, renal glands, ureters, bladder, and the internal parts of generation in both sexes. *Win-*
slow's Anat.

ABDUCTION, in surgery, a species of fracture, when a bone near the joint is divided transversely in such a manner, that

the extremities of the fractured bone recede from each other.

ABDUCTOR, a name given by anatomists to the following muscles:

ABDUCTOR Minimi Digiti Manus, or *Abductor Auricularis*, arises fleshy from the thin protuberating part of the eighth bone of the wrist; is inserted by a longish and round tendon, on the inside of the short tendon of the above described muscle, near the upper part of the first bone of the little finger. It serves not only to abduce the little finger from the rest, but also to bend it a little.

ABDUCTOR Indicis, arises broad and fleshy from the superior part of the first bone of the thumb; is inserted by a short tendon into the upper part of the first bone of the fore-finger, laterally, next the thumb. Its use is to bring the index towards the thumb, by drawing it from the middle finger.

ABDUCTOR Minimi Digiti Pedis, arises fleshy and tendinous from the semicircular edge of a cavity, on the outside of the inferior protuberance of the os calcis; it has another tendinous beginning from the os cuboides, and a third from the upper part of the os metatarsi minimi digiti; is inserted into the upper part of the first bone of the little toe externally and laterally. Its use is to draw the little toe outwards from that next to it.

ABDUCTOR Oculi, arises tendinous and fleshy from the foramen lacrum, without the orbit; is inserted by a thin tendon into the sclerotic; where it respects the great canthus. Its use is to move the eye outwards, from the great to the little angle.

ABDUCTOR Pollicis Manus, or *Thenar*, arises by a broad, tendinous, and fleshy beginning from the transverse ligament of the carpus, and from one of its bones that articulates with the thumb; is inserted tendinous into the second joint of digitorum manus. Its use is to draw the thumb from the fingers.

ABDUCTOR Pollicis Pedis, arises fleshy from the inside of the lower protuberance of the os calcis laterally, and tendinous from a little tubercle in the same bone, near the os cymbiforme. It only adheres to the other bones on the inside of the foot, filling up the hollowness in the os metatarsi pollicis; is inserted into the internal os sesamoideum of the first bone of the great toe; its tendons being farther continued upon the same bone laterally. Its use is to pull the great toe from the rest.

ABDUCTOR Femoris Primus, arises by a strong roundish tendon from the upper part

part of the os pubis next the pectineus above the gracilis; which, turning into a compact fleshy belly, it begins to be inserted tendinous about the middle of the linea aspera, being continued down upon the same five or six inches, sending out a tendon which joins with that of the femoris quartus.

ABDUCTOR Femoris Secundus, arises from the os pubis, immediately under the gracilis, by a broad tendinous, but chiefly fleshy beginning; and is inserted into the linea aspera, from a little below the lesser trochanter, to the first insertion of the last described muscle.

ABDUCTOR Femoris Tertius, arises lower down than the former, from the outer edge of the os pubis and ischium; and, running obliquely towards the trochanter minor, is inserted near the gluteus maximus.

ABDUCTOR Femoris Quartus, arises from the protuberance of the ischium, and the adjoining interior part of that bone, by a tendinous and fleshy origination; is inserted by a round and long tendon, into the upper and rough part of the inner and lower appendix of the os femoris, being affixed to that bone a little above the condyle; as also to some part of the linea aspera.

The use of all these four muscles is to adduce or move the thigh bone inwards, according to their different directions.
Douglas on the Muscles.

* **ABELARD** (Peter) a celebrated doctor of the twelfth century, was born at Palais near Nantz, in Britany: he was well learned in divinity, philosophy, and the languages, but was particularly distinguished by his skill in logic. He read lectures in divinity with great applause at Paris; where he boarded with a canon whose name was Fulbert, and who had a very beautiful niece named Heloise. The canon, anxious to see this young lady make a figure among the learned, made Abelard her preceptor: but instead of instructing her in the sciences, he taught her to love; in consequence of which she became pregnant; and at Abelard's request leaving her uncle, and retiring to his sister in Britany, was there delivered of a son. To soften the canon's resentment, he privately married her, and placed her in a nunnery, where she did not put on the veil. Her relations, enraged at Abelard, hired ruffians, who broke into his chamber in the dead of night, and there emasculated him. This treatment made Abelard fly to the gloom of a cloister; and, in order to conceal his confusion and

shame, he assumed the monastic habit in the abbey of St. Dennis; but the disorders of that house soon drove him from thence. He was afterwards chosen superior of the abbey of Ruis in the diocese of Vannes: when the nuns being expelled from the nunnery in which Heloise had been placed, he gave her his oratory, where she settled with some of her sister nuns, and became their prioress. He died in the priory of Marcellus at Chalons, April 21, 1142, aged sixty-three. He left several works, but the most celebrated are those tender letters that passed between him and Heloise, which have been translated into English; and one of them rendered into verse by the immortal Pope.

ABELIANS, a remarkable sect of heretics who sprung up during the reign of Arcadius, near Hippo in Africa. Their distinguishing tenet was to marry, and afterwards to live with their wives without having any carnal commerce with them.

* **ABERDEEN**, a maritime town in the north of Scotland, divided into two towns, the new and the old. It is the capital of the sheriffdom of that name. The streets are paved with stone, and at the west end is a little round hill, from whence issues a spring called the Spa. Over the Dee, about a mile from the city, is a bridge of seven stone arches. In the middle of the High-street is a church, well built of free stone; and near the port or wharf stands the custom-house. It has a spacious market-place, and most of the houses are of stone, chiefly four stories high, or more, with handsome sash-windows, and gardens and orchards behind them. It is the politest place in the north of Scotland, for its extent, the beauty of its private and public buildings; the chief of which is the college, originally a Franciscan monastery. It has a principal, four professors of philosophy, one of divinity, and one of mathematics. There is likewise a school, with a head master, and three ushers; a music school, three hospitals, an almshouse, and a library, built at the charge of the town, and furnished with good books from divers benefactions. Both these towns together make one city, which is reckoned the third in Scotland. There is very good anchoring in the bay, from seven to nine fathom water; but as the channel is narrow, and the bar often shifts its place, there is no venturing in without a pilot.

The merchants trade to divers parts, and in particular send their herrings to many places in the north of Europe. There is an incredible quantity of salmon in these rivers,



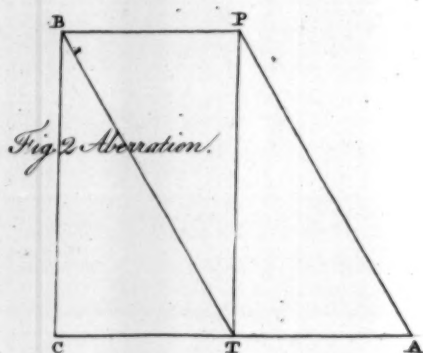
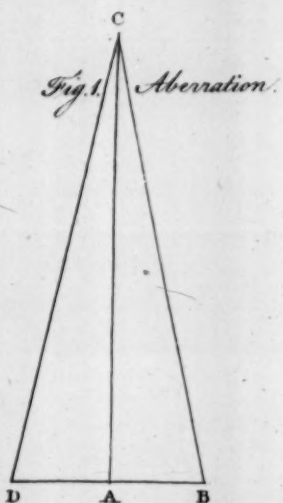
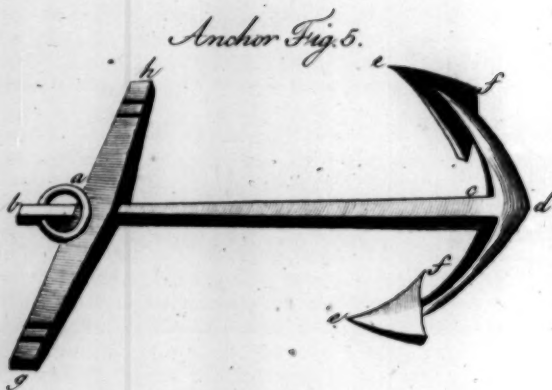


Fig. 4. Admiral Shells.



ABE.

ivers, which breed in the shallows in autumn; at which time they cast their spawn and are very poor and lean. The spawn in the spring becomes a fry of small fish, which make their way to the sea. Long. 1. 49. W. Lat. 57. 8.

ABERDEENSHIRE, a county in Scotland which includes Mar and other lesser divisions; is bounded on the south by Angus, Mearns, and Gaurie; on the north-west by Banffshire; and on the east by the German Ocean. The soil, with proper cultivation, would be sufficiently fruitful. The hilly parts, particularly the crags of Pennan, are covered with woods of fir and oak, and yield plenty of game and pasture, so that they have a great number of deer, sheep, black cattle and horses. They have likewise quarries of slate, limestone, and spotted marble, as also a stone peculiar to this country, called elf-arrow heads, which seem to be a kind of flint of different shapes, but all of them pointed, thin at the edges, and from half an inch to two inches long, but rough and unpolished. In the rivers are muscels, which breed a kind of pearl. The air is cool, but healthful, and their winter warmer than could be expected in such a northern climate, which is owing to the vicinity of the sea. Their firing is peat, turf and wood.

ABERRATION of the Stars, a small apparent motion of the fixed stars discovered by the late Dr. Bradley.

The word is compounded of *ab*, from, and *erro*, to wander, because the stars appear to wander from their true situation.

This noble discovery was accidentally made in 1725, when Mr. Molyneux and Dr. Bradley began to observe the bright star in the head of *Draco*, marked γ by Bayer, as it passed near the zenith, with an instrument made by Mr. Graham, in order to discover the parallax of the earth's annual orbit, and after repeated observations they found this star, about the beginning of March 1726, to be 20" more southerly than at the time of the first observation. It now indeed seemed to have arrived at its utmost limit southward; because, in several trials made about this time, no sensible difference was observed in its situation. By the middle of April it appeared to be returning back again toward the north, and about the beginning of June it passed at the same distance from the zenith as it had done in December, when it was first observed; in September it appeared 39" more northerly than it was in March, just the contrary way to what it ought to appear by the annual parallax of the stars.

ABE

This phenomenon greatly perplexed the observers; and Mr. Molyneux died before the true cause of it was discovered. After which, Dr. Bradley, with another instrument more accurately adapted to this purpose, observed the same appearances not only in that but in many other stars; and, by the great regularity that appeared in a series of observation made in all parts of the year, the doctor was fully satisfied with regard to the general laws of the phenomena; and therefore endeavoured to find out the cause of them. The next thing that offered itself, was an alteration in the direction of the plumb line, with which the instrument was constantly rectified; but this, upon trial, proved insufficient. He then had recourse to what refraction might do, but here also nothing satisfactory occurred. At last, through a most amazing sagacity, this acute astronomer conjectured, that all the phenomena, hitherto mentioned, proceeded from the progressive motion of light, and the earth's annual motion in its orbit: for he perceived, that if light was propagated in time, the apparent place of a fixed object would be the same when the eye is at rest, as when it is moving in any other direction, than that of the line passing through the eye and object; and that, when the eye is moving in different directions, the apparent place of the object would be different.

He imagined *CA* (plate I. fig. 1.) to be a ray of light, falling perpendicularly upon the line *BD*; then if the eye is at rest at *A*, the object must appear in the direction *AC*, whether light be propagated in time, or in an instant. But if the eye is moving from *B* towards *A*, and light is propagated in time, with a velocity, that is, to the velocity of the eye, as *CA* to *BA*; then light moving from *C* to *A* whilst the eye moves from *B* to *A*, that particle of it, by which the object will be discerned when the eye in its motion comes to *A*, is at *C*, when the eye is at *B*. Joining the points *B*, *C*, he supposed the line *BC*, to be a tube (inclined to the line *BD*, in the angle *DBC*) of such a diameter as to admit of but one particle of light; then it was easy to conceive that the particle of light at *C* (by which the object must be seen when the eye, as it moves along, arrives at *A*) would pass through the tube *BC*, if it were inclined to *BD*, in the angle *DBC*, and accompanied the eye in its motion from *B* to *A*; and that it could not come to the eye placed behind such a tube, if it had any other inclination to the line *BD*. If, instead of supposing

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CD so small a tube, we imagine it to be the axis of a larger; then for the same reason, the particle of light at C cannot pass through that axis, unless it be inclined to BD, in the angle CBD. In like manner, if the eye moves the contrary way, from D towards A, with the same velocity, then the tube must be inclined in the angle BDC. Therefore, although the true or real place of an object is perpendicular to the line in which the eye is moving, yet the visible place will not be so, since that must doubtless be in the direction of the tube; but the difference between the true and apparent place will be, *ceteris paribus*, greater or less, according to the different proportion between the velocity of light, and that of the eye. So that if we could suppose that light was propagated in an instant, then there would be no difference between the real and visible place of an object, although the eye were in motion; for, in that case, AC being infinite with respect to AB, the angle ACB (the difference between the true and visible place) vanishes. But if light be propagated in time, (which will be readily allowed by most of the philosophers of this age), then it is evident from the foregoing considerations, that there will be always a difference between the real and visible place of an object, unless the eye is moving either directly towards or from the object. And in all cases the sine of the difference between the real and visible place of the object, will be to the sine of the visible inclination of the object, or the line in which the eye is moving, as the velocity of the eye, to the velocity of light. If light moved but 1000 times faster than the eye, and an object (supposed to be at an infinite distance) was really placed perpendicularly over the plane in which the eye is moving, it follows from what has been said, that such object's apparent place will be always inclined to that plane, in an angle of $89^{\circ} 56' \frac{1}{2}$; so that it will constantly appear $3 \frac{1}{2}$ from its true place, and seem so much less inclined to the plane, that way towards which the eye tends; that is, if AC is to AB, or AD, as 1000 to 1, the angle ABC will be $89^{\circ} 56' \frac{1}{2}$, and $ACB = 3 \frac{1}{2}$, and $BCD = 2 ACB = 7'$, if the direction of the eye's motion is at one time contrary to what it is at another.

If the earth revolve round the sun annually, and the velocity of light were to the velocity of the earth's motion in its orbit, (supposing it circular as it nearly is), as 1000 to 1; then it is easy to conceive that a star really placed in the very pole of the

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ecliptic, would to an eye carried along with the earth, seem to change its place continually, and, neglecting the small difference on account of the earth's diurnal revolution on its axis, would seem to describe a circle round that pole, every way distant therefrom $3 \frac{1}{2}$; so that its longitude would be varied through all the points of the ecliptic, every year; but its latitude would always remain the same. Its right ascension would also change, and its declination, according to the different situation of the sun in respect of the equinoctial points, and its apparent distance from the north pole of the equator, would be 7' less at the autumnal than at the vernal equinox. The greatest alteration of the place of a star in the pole of the ecliptic (or which in effect amounts to the same, the proportion between the velocity of light and the earth's motion in its orbit) being known, it will not be difficult to find what would be the difference upon this account, between the true and apparent place of any other star at any time; and, on the contrary, the difference between the true and apparent place being given, the proportion between the velocity of light and the earth's motion in its orbit may be found.

ABERRATION of the Planets. The aberration which the motion of light produces on the planets, is sometimes more considerable than that of the fixed stars; for Mercury's aberration in his superior conjunctions with the sun, sometimes amounts to $55''$: however, aberration of the planets is reducible to this one principle, which is extremely simple. *It is always equal to the geocentric motion of the planet, during the time which light takes up in coming from the planet to us*; which may be demonstrated in the following manner. It is well known that an impression, or force acting, according to the diagonal of a parallelogram, is equivalent to two forces or impressions, according to its two sides. It is also known, that the motion of a planet seen from the earth, or the motion of the earth seen from a planet, are perfectly the same; so that if a planet appears to move one degree a day to an inhabitant of our earth, the earth appears to an inhabitant of that planet to move just one degree also, in the same time. This supposed; let P (plate I. fig. 2.) be the planet, which we will regard as immovable, APT the apparent motion of the planet translated to the earth: in the interval of time in which light comes from P to T, the earth having advanced from A to T, is struck by the ray of light according to the direction PT, and also strikes

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strikes the ray according to the direction *A T*, with the same velocity and the same force as if the ray itself had met the eye with the velocity *C T*; thus the eye receives two impressions of the light, one according to *P T*, the other according to *C T*; and so by a single impression, compounded of the two others, it refers the planet to the diagonal *B T*: but the angle *P T B* is equal to the angle *A P T*, which we have taken equal to the geocentric motion of the planet; therefore the aberration is equal to the motion, which the planet has during the time which light takes up in coming from the planet to the spectator's eye. For example, light takes up $8' 7'' \frac{1}{4}$ of time, in coming from the sun to us, the sun's motion in longitude, during that interval, is $20''$ of a degree, whence it follows, that the sun has constantly $20''$ of aberration in longitude: and, as the aberration causes the planet to appear on the same side the earth is going, and opposite that towards which the planet appears to be moving, it follows, that if the longitude, for example, of a planet be increasing, the aberration must diminish it; the same holds good of latitude, right ascension, and declination.

ABERRATION in *Optics*, a dispersion of the rays of light, reflected by a spherical speculum, or refracted by a spherical lens, in consequence whereof they cannot unite in one and the same focal point. This aberration as arising from two different causes, is of two kinds, the one owing to the figure of the speculum or lens, the other to unequal refrangibilities in the rays themselves; the discovery of which was made by Sir Isaac Newton; and therefore this latter species is sometimes called by writers of optics, the Newtonian aberration of rays. See the articles *SPECULUM*, *LENS*, and *FOCUS*.

ABETTOR, in law, one who incites, stirs up, counsels, advises, or procures others to commit a crime.

The word is formed from the Saxon *a*, an energetical article, and *betan*, to stir up or excite.

ABEYANCE, in law, is something that exists in expectation only. Thus if lands be leased to A. B. for life, with remainder to another person for years, the remainder for years is in *abeyance* till the death of the lessee.

ABIB, the name of the first month of the ecclesiastical year among the Hebrews. It began at the vernal equinox, and answers to part of our March and April.

The word is Hebrew, and signifies *an ear of corn*; the corn being then ripe in

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Palestine. Abraham, who was a practical astronomer, brought the Chaldean, or original year of the world, into Canaan; but settling among the Canaanites, it is probable used their year, which commenced about the autumnal equinox. Abraham, however, preserved the memory of the epocha of the Chaldean year in his family, and amongst his posterity. When the Israelites went into Egypt they used the Egyptian year, which had the same epocha with the Phœnician; but at their exodus, or going out of Egypt, they were commanded by God to begin the year at the original epocha of it, the vernal equinox, and to use this epocha only in their sacred institutions, their feasts, fasts, and other religious matters: but in civil affairs they still retained the epocha of the Egyptian year. So that the ecclesiastical year began at the vernal equinox, and all their sacred rites were regulated by it: while the Sabbatical and Jubilean years began at the autumnal equinox; but the months were counted from the vernal equinox only. Hence the month *Abib* or *Nisan*, which before was the seventh month, was by God's particular command to Moses, reckoned the first month of the year; and that which had been called the first, was termed the seventh month. Hence the Chaldee paraphrast on the 1 Kings, chap. viii. 3. says, the month *Ethanim*, which was called by the ancients the first, is now called the seventh.

ABIES, in botany, the fir-tree. See *FIR-TREE*.

ABINTESTATE, in the civil law, a person who inherits from a person that died intestate, or without a will.

ABJURATION, the act of renouncing or denying a thing on oath. Thus the abjuration of heresy is the solemn renunciation of some doctrine, as wicked, false, or erroneous. It is compounded of *ab*, against, and *juro*, to swear.

ABJURATION, in law, implies a sworn banishment, as an oath taken to forsake the realm for ever.

ABLAQUEATION, in gardening, the act of taking the earth from the roots of trees, in order to expose those parts to the immediate influence of the sun, air, and rain. Modern gardeners call it *baring of trees*. The word is formed from *ab*, and *lacus*, a ditch.

ABLATIVE, in grammar, is the sixth case of Latin nouns.

It is formed from *auferro*, to take away.

This case is peculiar to the Latin language, and is opposed to the dative case, because the former expresses the action of taking away, and the latter of giving.

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ABLUENTS, in medicine, the same as diluents, or such as carry off acrimonious and stimulating salts from the stomach and bowels.

ABLUTION, the act of washing or purifying the body with water, a ceremony used among the ancient Romans, and is still practised with the utmost strictness by the Mahometans. It is used in the church of Rome to signify the little wine and water which the communicants formerly drank after the host.

ABLUTION, in pharmacy, the washing or purifying a body by frequent effusions of warm, or any other proper fluid.

ABOLITION, the destroying or reducing a thing to nothing. In law, it signifies the erasing any particular from the memory, so as no farther prosecution may ensue.

ABOMASUS, or **ABOMASUM**, the fourth stomach of a beast that ruminates or chews the cud. The first is called venter, the second reticulum, the third omasus, and the fourth abomasus. The abomasus is that commonly called the maw, where the chyle is formed, and from whence the food descends to the intestines.

ABOMINATION, a term used in scripture respecting the Hebrews, who, being shepherds, are said to have been an abomination to the Egyptians; because they sacrificed the sacred animal of that people, such as oxen, sheep, &c. which the Egyptians esteemed as abominations. The term is also applied in the sacred writings to idolatry and idols. The *abomination of desolation*, foretold by the prophet Daniel, is supposed to mean the statue of Jupiter Olympius, which Antiochus Epiphanes caused to be placed in the temple of Jerusalem. And the *abomination of desolation*, mentioned by the Evangelists, signifies the ensigns of the Romans, during the last siege of Jerusalem by Titus, on which the figures of their gods and emperors were embroidered, and placed upon the temple after it was taken.

ABORIGINES, the original or first inhabitants of any country; but more particularly used to signify the ancient inhabitants of Latium, a part of Italy now called Romania.

ABORTION, in physic, a spasmodico-convulsive motion of the uterus, by which an immature and dead fœtus is violently excluded.

An abortion most commonly happens between the second and third month; sometimes between the third and fourth; and sometimes, but more rarely, between the fifth and sixth month of pregnancy, about the time that the menses were wont to flow.

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The signs of approaching abortion are not unlike those of a natural birth. In both cases there is a shivering and coldness; a pressing pain in the loins, extending itself to the pelvis; then it proceeds to the os sacrum, coxendix, and groin, with a stronger pulsation of the arteries; the os uteri is moist and relaxed, and a water, like the washing of flesh, breaks forth. Particularly in an abortion there is much blood with great weakness; sometimes fainting, and on the third day the fœtus is expelled. There often precedes a sudden rigour and horror, with lassitude, inappetence, nausea, palpitation of the heart, a pain in the loins, a heavy pain about the pubes, and the genital parts are cold. The greater the fœtus is, the more sharp are the spasms, and pains and symptoms as well as the danger are the greater. *Hoffman.*

The forerunners of an abortion according to Astruc, are a pain in the loins, or rather in the bottom of the uterus; a dull heavy pain in the inward parts of the thighs; slight shivering between the flesh and the skin; the belly, from being eminent and pointed above the navel, becomes flat and depressed; the infant is motionless; the breasts subside and become flaccid; a small flux of blood or serum oozes from the uterus, and is succeeded by an efflux of the waters, flooding, &c. with acute colic pains in the uterus from its convulsive contraction; a pain about the os pubis, and os sacrum, from the falling down of the fœtus to the orifice of the uterus; a desire of going to stool; then follow weakness, convulsive contractions by consent of parts, a syncope, and other symptoms. *Astruc.*—Women that abound with blood often have their menses in the second and third month of pregnancy, without any bad symptoms. In this case the blood, which proceeds from the vessels of the vagina, yields relief; I have known it happen in the middle of the pregnancy, without detriment to the fœtus. The most violent drugs will not procure abortion in some women. I have known some afflicted with acute fevers, the small-pox, measles, diarrhœas, and even dysenteries, and yet the fœtus has remained safe and sound. Others have travelled night and day in mountainous countries, or have been greatly fatigued with excessive dancing, without any harm. Nor do sudden fires, or other terrifying accidents, cause many abortions, if any at all. However, women full of blood, inactive, soft, fat, of a more subtle habit of body, who live high, are weakly, of greater sensibility, hysteric, inordinate in their menses, who have

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have miscarried, or whose mothers were prone thereto, are more liable to abortion than robust, strong fleshy women of the lowest class, who are not fat but inured to labour, and not apt to be terrified on every slight occasion. *Hoffman.*

To prevent abortion, bleeding is useful and necessary about the end of the third month of pregnancy. When there are gentle pains in the loins, descending to the hips and os sacrum, then bleeding in the upper parts is absolutely necessary. The body, in the first month especially, should be kept open with manna, rhubarb, or the like.

ABORTION is used, though somewhat improperly, to signify a foetus, which, dying in the womb, continues there beyond the time of gestation.

ABORTIVE, in general, is applied to whatever comes before its legitimate time, or to a design which miscarries.

ABRADATES, King of Susa, in Persia, celebrated for the tender affection of his wife Panthea. That princess was taken prisoner in a battle which Cyrus the Great, fought against the Assyrians, and was designed for the embraces of that monarch: but, notwithstanding her exquisite beauty, Cyrus gave her the most honourable treatment, without once offering to violate her chastity. Panthea, charmed with Cyrus's virtue, prevailed on Abradates to come over with his troops to him; and he being admitted into the conqueror's presence, offered him his service, which he readily accepted. Panthea then equipped her husband for the fight, exhorted him to behave courageously, and took a tender farewell. Abradates fought with the utmost intrepidity, but pressing with too much eagerness upon the Egyptian squadrons, was thrown from his chariot, and being unassisted by his friends, perished in the field. His corpse was found by Panthea, who had it put into her own sedan, and brought to the river Pactolus; where, while her eunuchs and slaves were digging his grave, she herself sat on the ground, and, with his head in her lap, dressed him with all the ornaments she had about her. Cyrus hearing this melancholy news, came to the place where Panthea was thus employed, and the mournful spectacle drew tears from his eyes. He spoke to her in the most tender terms; he took hold of Abradates's hand, which had been cut through with an Egyptian spear, and it came off into his. This circumstance aggravated the grief of Cyrus; but as for Panthea, she was inconsolable; she took the hand from Cyrus, kissed it, and fixing

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it to the place from whence it had been disjointed, cried, "The rest, O Cyrus! is as this." She continued her tender lamentations, while Cyrus wept in silence; but he at last endeavoured to comfort her, by telling her that due honour should be paid him at his funeral, and that she should be conveyed whithersoever she pleased. The king then leaving her, she commanded her eunuchs to withdraw, and resolving to die, bid the only attendant she would suffer to stay with her to cover her and Abradates, after she was dead, with the same cloth; and then taking a Persian scymeter, she plunged into her side, and reclining her head on her husband's breast, expired: upon which her three eunuchs also stabbed themselves. Cyrus made a magnificent funeral for them, and afterwards erected a stately mausoleum on the spot which was the scene of this fatal catastrophe. This happened five hundred and forty-eight years before the Christian era.

ABRAHAMITES, an order of monks, in the ninth century who were exterminated by Theophilus for the worship of images. It is also the name of a sect of heretics, who renewed the errors of the Paulicians.

ABRASION, in physic, a superficial exulceration of the membranous parts, attended with the loss of substance.

ABRIDGEMENT, an epitome, summary, or substance of a discourse, in which only the essential part is preserved. Abridgements are very useful for those who have neither leisure to consult the originals, nor ability to purchase them. But then they should convey a thorough knowledge of the matter treated of, and become what a miniature painting is to a picture drawn at full length. We may give a general idea of an extensive history, or other matter; but we should not enter upon a detail which we cannot explain, and of which we can only convey a confused notion, without yielding instruction, or reviving any ideas the reader had before acquired.

ABRIDGEMENT is used to express a short or contracted method of writing by using the initial letter, or some contraction of the word for the word itself; as *hon.* for honourable, *rev.* for reverend, *A. D.* for *anno domini*, &c. In Latin epistles we commonly find *S. P. D. salutem plurimam dicit*; and in inscriptions, *D. V. C. dicat* *volet consecrat*.

ABRIDGEMENT, in mathematics, is used for the reducing a compound equation to a more simple form of expression, by representing all the known quantities of the same term by one single letter.

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Thus in the equation $x^3 - ax^2 + abx - abc = 0$, by putting $a = n, ab = p, abc = q$, instead of the equation first proposed, we have this more simple but equivalent one $x^3 - nx^2 + px - q = 0$.

ABROGATION, the act of abolishing or totally repealing a law.

ABROTANUM Mas, in the materia medica, a plant known by the name of southernwood. It has small woody branches; numerous greyish green leaves divided into slender segments; and small, yellow, naked, discous flowers, hanging downwards, in clusters, along the sides of the stalks and branches. This plant is a native of open mountainous places in the warmer climates. With us it is raised in gardens from slips or cuttings, seldom producing seeds, and not often flowers. The leaves fall off in the winter; the roots and stalks are perennial. The leaves and tops of southernwood have a strong smell, to many people agreeable, and a nauseous penetrating bitterish taste; they lose a little by drying, both of their taste and smell. The flowers are somewhat weaker than the leaves. The cortical part of the younger roots has a light, and not an ungrateful bitterness, with little or nothing of the peculiar flavour of the herb. *Lewis's History of the Materia Medica.*

ABROTANUM Femina, the name of a plant called in England, lavender cotton. It is a bushy shrubby plant, all over hoary; with oblong slender leaves, composed each of four rows of little knobs set along a middle rib; and naked, discous, yellow flowers standing solitary on the tops of the stalks. It is a native of the southern parts of Europe; flowers in our gardens from June to near the end of summer; and holds its leaves all the winter. This plant is supposed to agree in virtue with the abrotanum Mas, and to be the most effectual of the two as an anthelmintic. It has been customary among the common people to use, in this intention, a decoction of the leaves made in milk, which receives from them a thick consistence, and a strong though not very disagreeable taste. On careful examination, the two abrotana appeared to differ very considerably in quality. The femina is in smell weaker and less agreeable than the mas; in taste nauseous and acrid, but void of the penetrating bitterness which prevails in the other. Infusions, tinctures, and extracts prepared from the femina; are more unpleasant than those of the mas, though not bitter. The essential oils of the two plants, and of consequence their distilled water, and spirits, approach nearer in flavour to one another,

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though not entirely alike. These differences, doubtless, affect their virtues as internal medicines. Nevertheless, for fomentations, which is the principal use that either of them is applied to in the present practice, they may be looked upon as very nearly alike: hence the college of physicians at London, under the name abrotanum, allow either the mas or femina to be taken indifferently. *Lewis's History of the Materia Medica.*

ABROTONITES, a wine recommended by Dioscorides impregnated with abrotanum or southernwood: it is a diuretic, and good in disorders of the stomach, loss of appetite, and in the jaundice.

ABSCENDENTIA, in surgery, decayed parts of the body, which, in a morbid state, are separated from the sound, or lose that union which was preserved in a natural state of health.

ABSCCESS, in surgery, is a tumor containing pus or purulent matter.

Abcesses are the consequences of an inflammation: the ripening of abcesses is promoted by means of cataplasms, poultices, &c. The excessive heat of the tumor and the throbbing pains which are felt, attended by a fever, are signs that the inflammation will terminate in suppuration; the irregular shiverings, which come on upon the heightening of these symptoms, denote that the suppuration is forming: the abcess is formed when the matter is turned into pus: the diminution of the tension, fever, pain, and heat, together with a cessation of the throbbing, are rational signs; and the softening of the tumour and fluctuation are sensible signs which foretel that termination. Abcesses are opened by caustics or incision, and cannot be cured but by an evacuation of the pus: but in critical tumors, which are sometimes occasioned by malignant fevers, caustics are to be preferred. The application of a caustic fixes the humour in the part where nature seems to have deposited it, and hinders resorption, which would be dangerous, and oftentimes mortal. Caustics dispose the part to a plentiful suppuration, and accelerate the formation of it; and, with this view, are used before the maturation is perfect; they are likewise applied to such tumors as form themselves slowly, and by congestion, as well as to those which form in the shape of a cone, and whose circumference is hard, so that the conversion of the humour into pus would be either difficult or impossible, without their assistance. To open a tumour by a caustic, it is necessary that it should be covered with a plaster, in the middle whereof is left an orifice

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orifice of such a size as may be judged most convenient, and in which a proper potential cauterium must be put, in order to be applied to the skin; if the caustic be solid, it must be wetted before it is applied. The whole is to be covered with another plaster, proper compresses, and a retentive bandage. In about five or six hours, when, according to the activity of the caustic, it is judged that the eschar must be formed, and dressings are taken off, and the eschar divided, from one end to the other, with a bistoury; in the doing of which great care is to be taken to go down as low as the pus: after the operation, the wound is dressed with digestives; and the eschar separates in a few days with a plentiful suppuration. In common cases of abscesses, it is best to divide the eschar with an incision knife, observing to plunge it into the center of the abscess. When the whole length of the abscess is opened, the finger is introduced into its cavity; and if there be any membranes which form partitions, and divide the abscess into several cellulae, they must be cut with the point of the scissors, or with the bistoury. In all these cases, the instruments must be conducted by the end of the finger, for fear of injuring any of the parts which may be taken for membranes without that precaution: if the skin is very thin, it must be cut off with the scissors or the bistoury; though the latter instrument is preferable, as it occasions less pain, and renders the operation quicker. The incision should be always made at the lowest part of the abscess, and the skin spared as much as possible, on which account counter openings are often made when the abscess is very large.

ABSCISSE, or **ABSCISSA**, in mathematics, any part of the diameter or axis of a curve, contained between its vertex or some other fixed point, and the intersection of an ordinate. Such is the line *A O* (Plate I. fig. 3.) contained between the vertex *A* of the curve *B A C*, and the ordinate *B O*. The word is derived from *abscindere*, to cut off. In the parabola, the abscissa is a third proportional to the parameter and the ordinate, and the parameter is a third proportional to the abscissa of the ordinate. In the ellipsis, the square of the ordinate is equal to the rectangle under the parameter and the abscissa, lessened by another rectangle under the said abscissa, and a fourth proportional to the axis, the parameter, and the abscissa. In the hyperbola the squares of the ordinates are as the rectangles of the abscissa by another line compounded of the abscissa and the transverse axis. In these two propositions re-

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lating to the ellipsis and the hyperbola, the origin of the abscissas, or the point *A*, from whence they begin to be reckoned, is supposed to be the vertex of the curve, or which amounts to the same, the point where the axis meets it: for if the origin of the abscissas be taken from the center, as is often done, then the two foregoing theorems no longer hold good.

ABSCISION, in surgery, is used to express the dividing any corrupted and useless part of the body from the sound, by means of some sharp instrument; it is principally applied to the soft and fleshy parts of the body; for this operation, with regard to the bones, is usually stiled amputation.

ABSCISION, in rhetoric, a figure of speech, whereby the speaker stops short in the middle of his discourse.

ABSINTHITES Vinum, wine of wormwood.

ABSINTHIUM, wormwood, in the materia medica, a perennial plant, with large winged and serrated leaves, of a strong, pungent smell. In the beginning of July it throws out several ligneous, striated, hoary stalks, two or three feet high, set with small leaves, having at the top a spike of small flowers of a pale yellow, growing many together, each inclosed in a small squamous calix, containing very small seeds.

The *absinthium vulgare*, or common wormwood, generally grows by the sides of highways and foot-paths; but the *absinthium Romanum* is propagated in gardens, by parting the plant every second year, and planting the slips in rows at about three feet distance.

Of this plant there are only four sorts used in medicine, viz. the great or Roman wormwood, the small sort or Pontic, sea wormwood, and the *absinthium Alpinum*. Besides these, botanists make twenty-eight other kinds.

This plant is ordered in the jaundice, cachexy, and green sickness; it kills worms and strengthens the stomach: but is, like most other bitters, bad for the nerves. Several medicinal compositions are prepared from this plant; and, among others, the *absinthites vinum*, or wormwood wine. To make it, take four pounds of the tops of each of the two first kinds of *absinthium* or wormwood when fresh and in bloom; cleanse, and either mince or bruise them, and put them together, with three drachms of powdered cinnamon, into a barrel which will contain fifty quarts: fill the barrel with must, fresh expressed from the white grape, and set the barrel into a cellar, leaving

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leaving the wine to ferment: when the fermentation is over, fill up the cask with white wine, bottle it, and keep it for use.

A more expeditious receipt for making *vinum absinthites*, at any time.

Take the dried leaves of the two sorts of wormwood, of each six drachms, and pour thereon two quarts of white wine; then put them together into a large bottle, and set them in the cool to macerate twenty-four hours; then, having squeezed out the leaves thoroughly, filtrate the liquor, and you will have a *vinum absinthites* which you may keep for use.

ABSOLUTE, implies something that subsists independently of others. The word is compounded of *ab*, and *solv*, to release.

ABSOLUTE Equation, in astronomy, the aggregate of the optic and eccentric equations. The apparent inequality of a planet's motion arising from its not being equally distant from the earth at all times, is called its optic equation, and would subsist even if the planet's real motion were uniform. The eccentric inequality is caused by the planet's motion being uniform. To illustrate which, conceive the sun to move, or to appear to move in the circumference of a circle, in whose center the earth is placed. It is manifest, that if the sun moves uniformly in this circle, it must appear to move uniformly to a spectator on the earth, and in this case there will be no optic nor eccentric equation: but suppose the earth to be placed out of the center of the circle, and then, though the sun's motion should be really uniform, it would not appear to be so, being seen from the earth: and in this case there would be an optic equation, without an eccentric one. Imagine farther, the sun's orbit to be not circular but elliptic, and the earth in its focus; it will be full as evident that the sun cannot appear to have an uniform motion in such eclipse; so that his motion will then be subject to two equations; that is, the optic equation, and the eccentric equation. See **EQUATION**.

ABSOLUTE Government is that government wherein the prince is left solely to his own will, not being limited by any laws. When the Danes, in 1670, made their king absolute, they declared he was absolved from his coronation oath.

ABSOLUTE Gravity, in physics, implies the whole force by which a body is argued downwards. See **GRAVITY**.

ABSOLUTE Number, in algebra, is a known quantity which possesses one intire part or side of an equation, being the product of the unknown roots in any equation. So in the equation $x^2 + 16x = 36$,

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the absolute number is 36, being equal to the square of the unknown root x added to 16 times x . Also in this cubic equation $x^3 + 20x^2 - 10x = 100$, the absolute number is 100, being equal to the whole other side of the equation $x^3 + 20x^2 - 10x$. This is what Vieta calls *homogeneous comparisonis*. See **EQUATION**.

ABSOLUTE, in metaphysics, implies a being that exists by necessity of its own nature. In which sense God alone is absolute.

ABSOLUTE is also an epithet applied to things that are free from limitations or conditions.

ABSOLUTION, the act of pardoning or forgiving. It is granted either by a prince or magistrate, and stops the execution of justice.

ABSOLUTION, in civil law, is a judgment or sentence, whereby the party accused is declared innocent, and saved from the punishment inflicted by the laws for the commission of the crime with which he was charged.

ABSOLUTION, in the canon law, a juridical act, whereby the priest declares the sins of such as are penitent remitted.

ABSORBENTS, in the healing art, a general name for such medicines as have the power of imbibing the superfluous humours in the stomach or intestines. All the testaceous powders, chalks, earths, calcined bones, &c. are medicines of this kind.

The word is compounded of *ab*, and *sorbeo*, to drink. Absorbents are usually given when the absorbent humours are of the acid kind. Among this numerous class of remedies, there is not perhaps one equal to the *magnesia alba*; because it not only absorbs the acid juices, but also by its gentle purgative quality, carries the offending matter off by stool.

ABSORBENT Vessels, in anatomy, those vessels which absorb the juices of the body. Thus the lacteals are called absorbent vessels, because they absorb the chyle. The cutaneous vessels are called by the same name, from their absorbing a part of the water of baths, fomentations, &c.

ABSTEMIOUS, an epithet applied to those who use a spare diet, especially to those that abstain from wine and all other fermented liquors.

ABSTENTION, in the medical art, is used to express a suppression or retention.

ABSTERGENTS, in physic, remedies of a saponaceous nature, capable of dissolving resinous concretions.

ABSTINENCE, the act of refraining from certain enjoyments; particularly from immoderate eating and drinking.

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ABSTINENCE, in physic, implies a privation from all succulent aliments. Though abstinence is not sufficient for the cure of diseases, it wonderfully assists the operation of medicines, and is a sure preservative against many disorders. We should regulate the quantity of aliments we take, by the loss of substance sustained by means of exercise, and the time in which perspiration is more or less plentiful; at the same time we should be careful to abstain from such aliments as we have observed to disagree with us. According to Dr. Cheyne, most of the chronic diseases, the infirmities of old age, and the short lives of Englishmen, are owing to repletion; and may be either cured, prevented, or remedied by abstinence.

ABSTRACT, an epithet implying that those particulars are separated from all other things by an operation of the mind called abstraction. See **ABSTRACTION**.

ABSTRACT Ideas, the ideas or notions we acquire of some general quality or property, considered simple in itself, without the least regard to any particular subject.

ABSTRACT Mathematics, otherwise called pure mathematics, is that which treats of magnitude or quantity, absolutely and generally considered, without restriction to any species of particular magnitude; such as arithmetic and geometry; in this sense, abstract mathematics is opposed to mixed mathematics, wherein simple and abstract properties, and the relations of quantities primitively considered in pure mathematics, are applied to sensible objects, and by that means become intermixed with physical considerations; such as hydrostatics, optics, navigation, &c.

ABSTRACT Numbers are assemblages of units, considered in themselves, without denoting any particular and determined particulars. Thus 8 is an abstract number, when not applied to any thing; but if we say 8 feet, 8 becomes a concrete number.

ABSTRACT Terms, in logic, are those which denote objects existing in the imagination only. Thus *beauty* and *ugliness* are abstract terms. There are some objects that appear beautiful to us; and, others that affect us in a disagreeable manner: the former we stile beautiful and the other ugly, though there are no such real substances in nature as beauty and ugliness; they subsist entirely in the imagination.

ABSTRACT, used as a substantive, implies a general view or analysis of some larger work.

ABSTRACTION, in physic, implies that operation of the mind, whereby it forms by reflection from the sensible im-

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pressions of external objects or some internal affection, a singular conception, independently of all other ideas. As we have no other method of communicating our thoughts than that of speech, necessity and custom induced us to give names both to real objects, and metaphysical conceptions; and those names have greatly contributed towards enabling us to distinguish these conceptions. The uniform sensation, for instance, that all white objects excite in us, has led us to give the same qualified names to each of these objects; we say each of them in particular, that it is white, and afterwards, in order to denote the point wherein all these objects resemble one another, we have coined the word *whiteness*; therefore there are, in fact, such objects as we call white; but there is not, except in our imagination, any being which we term *whiteness*. Thus *whiteness* is only an abstract term; it is the produce of our reflection, owing to the uniformities of particular impressions, that several white objects have made on us; it is the point to which we refer all those impressions which are different on account of their particular cause and uniform in regard to their kind. Abstract ideas are then as it were the point to which we refer the different impressions, or particular reflections which are of the same kind, and from whence we remove all that is not precisely so. Such is man: he is a living being, capable of feeling, thinking, judging, reasoning, willing, distinguishing every single act of each of these faculties, and by those means of making abstractions. A common name has been given to all individuals that resemble each other, and this is called by the name of species, because it agrees with every individual of one kind. Mark is man, and Luke is man; Alexander and Cæsar were men. In this sense the name species is only an adjective like *beautiful*, *good*, *true*, &c. and upon that account there is no article joined with it. But if we regard the man, without making any particular application of the word, then the man is taken in an abstract sense, and becomes one specific individual, and for that reason it is that the article is added; and thus it is that we say the *beautiful*, the *good*, the *true*. These simple specific abstracts have not however been observed; from man has been formed *humanity*; from *beautiful*, *beauty*; and so of others.

The custom we daily have of giving names to the objects of ideas, which represent real substances to us, has induced us to give them likewise, by way of imitation, to the metaphysical objects of abstract

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abstract ideas, of which we have a conception; and hence it is that we speak of them in the same manner as we do of real objects.

Illusion, figure, and falsehood, have a language in common with truth. The expressions which we ourselves make use of to convey to others either the ideas which we have within ourselves of real objects, or of such as are but simple abstractions of our mind, have a perfect analogy with one another. We say death, sickness, imagination, idea, &c. as we say, the sun, the moon, &c. though death, sickness, idea, &c. are not existing substances: and we speak of the phoenix, chimera, sphinx, and the philosopher's stone, in the same manner as we speak either of the lion, panther, rhinoceros, Africa, or Peru. Even prose, though with less ornament than poetry, realizes and forms persons of these abstract beings, and equally misleads the imagination. If Malherbe has said, that death has its terrors, that he stops his ears, that he leaves us to cry out, &c. do not our prose writers always use similar expressions, that death respects no one: to wait for death, the martyrs have dared death, have sought death; to meet death without emotion, the image of death, to face death; death does not surprise a wise man; neither have we a more popular expression, than that death is never satisfied, or that death is never in the wrong. The heathens realized love, discord, fear, silence, health, &c. and made so many divinities of them. And nothing is more common with us than to realize an employment, place, or dignity: we make persons of reason, taste, genius, temper, and the passions of humour; character, virtues, and vices; churches, kingdoms, and cities; as well as of the mind, heart, fortune, misfortune, reputation, and nature. The real beings which surround us, are moved and governed in such a manner as is known to God alone, and according to those laws which he thought fit to establish when he created the world: thus God is a real term, but nature is only a metaphysical one. Although a musical instrument, upon the touching of its strings, in itself receives but a simple modification, when it gives the sound *re* or *sol*; yet we speak of these sounds as if they were so many real beings: and in the manner that we speak of our dreams, imaginations, ideas, pleasures, &c. as if we actually dwell in a real and physical country. And in truth, if we may use the expression, we actually speak the language of the country of abstractions.

Physical terms are of use to shew that we speak of real objects; whereas a meta-

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physical name denotes that we speak only of some particular conception of our mind: and therefore when we say the sun, the earth, the sea; that man, that horse, that stone, &c. our own experience, as well as the concurrence of the justest motives, persuade us, that there are such real objects as the sun, earth, &c. and that if these objects were not real, our forefathers would never have coined those names, nor should we have adopted them: so when we say, the nature, fortune, prosperity, health, sickness, death, &c. the vulgar, by imitation, believe that there is, independently of their manner of thinking, some being which we call nature, another stiled fortune, and so on: for they do not imagine that all men would say, the nature, fortune, life, death, &c. when there was no such real object as nature, fortune, &c. as if we could have neither conceptions or imaginations, unless there had been real objects which were the exemplars of them. In truth, we cannot have these conceptions, unless something real gives us room to form them; but the word which expresses conception has not, except within ourselves, any proper exemplar.

Finally, if we would avoid abstract terms, we must be obliged to have recourse to circumlocutions and paraphrases, which enervate the discourse. Besides, these terms fix the mind; they assist us in introducing order and precision in our thoughts, give grace and energy to discourse, render it more lively, compact, and forcible; and in short, highly deserve that we should be acquainted with their just value. Abstractions are in discourse what certain signs are in arithmetic, algebra, and astronomy: but when we do not attend to their value, or to give or take them for what they are really worth, they misguide the mind from the reality of things, and so become the source of a multiplicity of errors. We would therefore advise, that, in the didactic style, that is, when we are teaching and instructing, we should make use of abstract terms and figurative expressions, with the greatest circumspection.

ABSTRUSE, something deep, hidden, concealed, or far removed from common apprehensions, and not easily understood; what is not obvious and palpable. It is formed from the Latin *abstrusus*.

Thus metaphysics is an abstruse science; and the doctrine of fluxions, and the method de maximis et minimis are abstruse points of knowledge.

ABSURD, an epithet applied to things that oppose the human apprehension, and contradict a manifest truth. Thus, it would

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would be absurd to say that five and five make only eight. When the term absurd is applied to actions, it has the same import as ridiculous.

Reductio ad Absurdum, a method of proving the truth of a proposition, by shewing that the contrary is absurd. This method of reasoning is freely used by Euclid in his Elements of Geometry.

ABSURDITY, a ridiculous impropriety, or something that opposes an evident truth or principle.

ABSYRTES, in heathen mythology, the son of Æta and Hypsæa, and brother of Medea. Medea running away with Jason, after her having assisted him in carrying off the golden fleece was pursued by her father; when, to stop his progress, she tore Absyrtēs in pieces, and scattered his limbs in his way.

ABTHANES, a title of honour used by the ancient inhabitants of Scotland, who called their nobles *Abthans*, which in the old Saxon signifies *King's ministers*; and of these the higher rank were titled *abthanes*, and those of the lower *underabthanes*.

ABUSE, implies the perverting something from its genuine or original intention. Thus an abuse of words is the using them without any clear and distinct ideas.

ABUTILON, in botany, the name of a plant with a monopetalous campiform flower, very open and indented; from the bottom there arises a pyramidal fistula; generally charged with stamina. The pistil adheres to the calyx, and is fixed like a nail in the lower part of the flower and fistula. The pistil becomes a fruit, resembling the capital of a column, and is composed of several small capsules placed round an axis, each capsule being inserted into the furrow of the axis. These capsules open in two parts, and contain kidney-shaped seeds. *Tournefort*.

ABYSS, something very profound, and as it were bottomless. The word is originally formed from the Greek.

Abyss is also used to denote an immense cavern of the earth, where God collected all those waters on the third day; which, in our version, is rendered the deep, and elsewhere the great deep. In Holy Scripture abyss is made use of to express hell, the greatest deeps of the sea, and the chaos that was covered with darkness at the beginning of the world, and upon which the spirit of God moved or was carried. Gen. ch. 1. v. 2. The ancient Hebrews believed as the major part of the eastern people do to this day, that the abyss, sea, and heavens, encompassed the whole earth; which say they, was as it were plunged into and floated

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upon the abyss, pretty much as a melon swims half above and half below water. They likewise believe that the earth was founded upon the waters, or at least that it had its foundation in the abyss. Under the waters, and at the bottom of this abyss, it is that the scriptures represent as the giants groaning and suffering punishment for their crimes. There it is that the Rephaim, those ancient giants, who in their life-times made mankind tremble, are confined. In short, it is within these dark dungeons that the prophets shew us the kings of Tyre, Babylon, and of Egypt, who are there buried, and yet live to expiate their pride and cruelties. We are likewise told that these abysses are the habitations of devils and the wicked. I saw, says St. John, in the Revelations, a star fall from Heaven; and to him was given the key of the pits of the abyss, of the bottomless pit. *Calmes' Dict.*

ABYSSINIA, is a kingdom bounded on the north by Nubia, on the east by the Arabic Gulph or Red Sea, and the kingdom of Adel; on the south by the kingdoms of Ajan, Alaba, and Gingiro; and on the west by the kingdom of Goram, and part of Gingiro. The principal river is the Nile, and the most considerable lake that of Dambea, which discharges itself into the Nile, and is about seven hundred miles in length, and ninety in breadth. The air is temperate in the mountains; but in the valleys it is hot and suffocating. The earth is of different kinds. In some places there are nothing but rocks and caverns; in others the land is exceeding fruitful, and the banks of these streams are bordered with flowers of various kinds, many of which are unknown in Europe. They have two crops in a year at least, and have some wheat, barley, maize, and pulse; likewise abundance of ginger, cardamums, cotton, silk, sugar, honey, wax, and vines. Their common drink is mead and metheglin. There are mines of gold, silver, copper, iron, and lead, but they are generally neglected. However, it is said that they work a gold mine that is well guarded with soldiers; and the torrents in the rainy season wash a great deal of that metal from the mountains. This season begins in May, when the sun is vertical, or directly over their heads, and ends in September: which is the cause of the overflowing of the Nile, which so much puzzled the ancients. The most useful mines are those of rocks salt: when they have procured any large pieces, they cut it into bars of different sizes, which they use instead of money.

and with this and half an ounce of gold they carry on their trane. This country produces a great variety of animals, (such as lions, tigers, rhinoceroses, leopards, elephants, monkeys, dogs, deer, and several sorts of game). There are likewise other birds, and a great variety of birds, besides hawks, eagles, frigates, geese, goats, hares, and sheep. In the lakes there is the hippopotamus, or sea-horse, which is an animal that lives in the water as well as on the land. It is somewhat as big as an ox in some things, but is much larger, and weighs near one thousand six hundred pounds; but is like a crocodile in the water, and a great variety of venomous reptiles. There is a peculiar kind of horse, which are small, black, and without hoofs; they live in the earth, and make honey, and wax, that are extremely white. They are greatly infested with locusts, which devour every thing green whenever they come. Besides the large towns there are a great number of villages, which in some places are so thick, that they look like one continued town; the houses are very mean, being but one story high, and built of straw, earth, and lime. The government is monarchical, and the sovereign is an absolute prince. When he is in camp, the tents are so regularly disposed that you might mistake it for a city, and there is a captain over every division to prevent disorders and execute justice. The Abyssinians in general are of an olive complexion, tall, graceful, and well featured; those that are without mechanic trades, and are tillers of the ground, are armed with spears, which are a head-piece, a handle, a coat of iron, and a point, and a fling, and a sword; they have very few fire-arms, and these were introduced by the Portuguese. The habit of persons of quality is a silken vest, or fine cotton, with a kind of scarf. The citizens have the same habit, only coarser. The common people have nothing but a pair of cotton drawers, and a loath, which covers the rest of their body. The women are of a healthy constitution, active, and moderately handsome, having neither flat noses, nor thick lips, like the negroes. Their religion allows the men but one wife; but they often break through that rule, and are willing to take many more. The nobles of the royal blood are not permitted to marry foreigners, and when they take the wives they go to great towns, with four or five hundred household servants. The language of the Abyssinians is the Ethiopic, which bears a great affinity with the Arabic. The re-

ligion of the country is the Christian, though there are Jews, Mahometans, and Pagans in divers parts, but not every where tolerated. The particular tenets of the Abyssinians are partly conformable to the Erythraean, and partly peculiar to themselves. They believe that Jesus Christ has but one nature, which is the divine, and his humanity is entirely swallowed up in the divinity. They deny transubstantiation, purgatory, extreme unction, images in churches, the efficacy of the clergy, and auricular confession. In some things they conform to the Jewish religion, using circumcision as well as baptism; they pay equal regard to Saturday and Sunday, and hold swine's flesh in abhorrence. They behave very decently in their churches, pulling off their shoes before they go in. Besides prayers, they only read a part of the Scriptures, having no preaching; but they carefully attend the hours of divine service, and seem to have great devotion.

ACACIA, in botany, is the name of a tree which bears leguminous flowers and leaves in pairs, opposite to each other; the pistil rises out of the calyx, is enveloped with a serrated membrane, and succeeded by a flat pod, divided into two parts, containing several seeds in shape like a kidney. The leaves of the acacia are placed in pairs on one side of the stalk, which is terminated by a single leaf.

AMERICAN ACACIA is a tree common in that part of the world. It does not grow to any great height; its wood is hard and rough, its foliage long, but small, and affording but little shade, and its branches are full of thorns; this tree bears a quick growth, and in the spring bearing clusters of very agreeable flowers, is proper to be planted in clumps of flowering shrubs, and in wilderness quarters. Its branches being very subject to hang down and trail on the ground, it is customary to prop them, but this greatly disfigures the tree; the acacia is propagated by seed.

ACACIA, in the materia medica, an infusated gummy juice, of a brown colour without, and either blackish, reddish, or yellowish within; it is of a firm consistence, hard and melting in the mouth, has an astringent taste, but is not disagreeable. Its juice is generally made up into little round lumps, of four, six, or eight grains weight, wrapped up in thin bladder, and is brought from Egypt. They esteem that sort to be the best which is new made, pure, clean, and easily soluble in water. This juice is pressed from the immature pods of a tree called *acacia folia scorpiadis leguminoza*. They wash

wash the pods in water before they are ripe, bruise them and express their juice, which they boil to a proper consistence, and then lay it in little heaps. This juice analyzed yields a moderate portion of acid salt, a great deal of astringent earth, and a large quantity of oil. It is placed among the incrustants, and repellant astringents, prevents vomiting, and stops hemorrhages and fluxes of the belly. The dose is given usually either in powder, bolus, or any liquid vehicle; the Egyptians gave a drachm of it dissolved in any liquid every morning, to such as are troubled with spitting of blood.

ACACIA *Germanica*, the inspissated juice of wild does gathered before they are fully ripe. It is often used as a succedaneum for the Egyptian acacia.

ACADEMICS, a sect of philosophers who followed the doctrine of Socrates and Plato, with regard to the uncertainty of human knowledge, and the incomprehensibility of truth. Academic in this sense, amounts to nearly the same with what we call Platonist, the only difference between them being that of commencement. The ancients who embraced Plato's system were called academici, academics; whereas those that followed the same opinions since the restoration of learning, have taken the denomination of Platonists. It may be said, that Socrates and Plato, who laid the first foundations of the academy, were not so erroneous as those who succeeded them; we mean Arcefilas, Carneades, Clitomachus, and Philo. Socrates indeed professed to know nothing; but his doubts arose from physics only, which he at first diligently cultivated, and which he afterwards acknowledged to surpass the reach of human understanding: if he sometimes spoke in the language of the sceptics, it was out of irony or modesty, in order to pull down the vanity of the sophists, who foolishly boasted, that they were ignorant of nothing, and always ready to dispute on all manner of subjects. Plato, the father and institutor of the academy, who was instructed by Socrates in the art of doubting, confined himself to his own manner of treating subjects, and undertook to oppose all the philosophers who had preceded him: but by recommending to his disciples a diffidence of themselves, and to doubt of every thing, he did not intend to leave them fluctuating between truth and error; but to put them on their guard against those rash and precipitate decisions, so natural to youth, and prevent their falling into error, by freely examining every thing without prejudice. Ar-

cefilas taught, that we do not even know whether we know any thing; that nature has not given us any rule of truth; that human understanding and the senses are incapable of comprehending truth; that he found in every thing reasons opposed by an equal force; and in a word that all things are immersed in darkness, and consequently that we must always suspend our assent. His doctrine was not much applauded, because he seemed desirous of extinguishing every ray of science, of throwing darkness on the mind and overturning the foundations of philosophy. Lucceyus was the only person who defended the doctrine of Arcefilas: He transmitted it to Evander, one of his disciples, and Evander transmitted it to Hegesinus, who handed it down to Carneades. He however did not follow the doctrine of Arcefilas in every particular, though he retained its principal tenets: this made him pass for the author of a new academy, which was called the third. He opposed, with great wit and eloquence, all the opinions proposed to him, without discovering his real sentiments. He first made Rome acquainted with the power of eloquence and the merit of philosophy; and that sparkling state, attracted by the novelty and excellence of so noble a science, followed Carneades with so much eagerness, that Cato, a man in all other respects of an excellent judgment, but deficient in politeness, grew jealous of this new kind of etudition, which had the power of captivating the affections of mankind. Cato declared in the senate, that they ought to grant Carneades, and the deputies which accompanied him, whatever they demanded, and send them instantly back with honour to their country.

The corrections which Carneades made in the doctrine of Arcefilas are very trifling: it is easy to reconcile what Arcefilas said, "that he found no truth in things," with what Carneades advanced, "that he did not deny there being some truth in things, but that we have no rule whereby to discern it; for there are two kinds of truth; the one what we call truth of existence, the other truth of judgment." It is therefore plain that those two propositions of Arcefilas and Carneades regard the truth of judgment. But the truth of judgment is in the number of relative things, which ought to be considered as having a relation to our mind; when therefore Arcefilas said, there was nothing true in things, he meant, that there was nothing in things that the human mind could know with certainty.

certainty; and this is exactly the same with what Carneades maintained. Arcefilas said that nothing could be comprehended, and that all things were obscure. Carneades granted, that nothing could be comprehended, but did not, for that reason, allow that all things were obscure; because probable things were not, in his opinion, obscure. But though he made some difference in expression, he made no difference in effect; for Arcefilas did not maintain, that all things are obscure otherwise than as they cannot be comprehended, nor did he divest them of all semblance of truth or probability: this was also the sentiment of Carneades; for when he said, that things were not so obscure, but we might discern those which ought to be preferred for the purposes of life, he did not pretend that they were clear enough to be comprehensible: it follows therefore that there was no diversity of sentiment between them, when Carneades permitted the wise man to entertain opinions, and perhaps even sometimes to testify his own consent; and when Arcefilas forbid both the one and the other, Carneades only asserted that the wise man ought, for the common purposes of life, to make use of probable things, without which he could not live; but not of the conduct of the mind, and in the search after truth; and whence only Arcefilas banished both opinion and consent. Consequently their differences consisted in expressions only, and not in the things themselves.

Philo, the disciple of Clitomachus, who had himself been a pupil of Carneades, deserved to be stiled with Charmides, "the founder of the fourth academy," as he differed in some points from the sentiments of Carneades: for he asserted that things are in themselves comprehensible, though we are unable to comprehend them.

Antisthus was the founder of the fifth academy. He had been several years a disciple of Philo, and maintained the doctrine of Carneades; but, in the decline of life, he quitted his master's party, and introduced into the academy the tenets of the stoics, which he attributed to Plato, maintaining that the doctrine of the stoics was not new, but a reformation of the ancient academy. This fifth academy therefore was only an association of the ancient academy, and the philosophy of the stoics; or rather the stoical philosophy, dressed in the habit of the old academy, which flourished under Plato and Arcefilas. Some have indeed pretended that there was only one academy; for as the several branches which spring from the same root, and

spread themselves on different sides, are not different trees; so all those sects which sprung from the single stock of the doctrine of Socrates, *that man knows nothing*, though divided into several schools, are no more than one academy.

ACADEMY, in antiquity, was a garden or villa, situated in one of the suburbs of Athens, about a mile from the city, where Plato and his followers held their assemblies to converse on philosophical subjects. This place gave the denomination to the sect of academics. This villa had the name of academy given to it from one Academus, or Ecademus, a citizen of Athens, who was originally the owner of it, and made it a kind of gymnasium. He lived in the time of Theseus, Cimon embellished the academy, and adorned it with fountains, trees, and walks, for the convenience of philosophers and men of learning, who here assembled to confer together and dispute upon different subjects. It was also the burial place of those illustrious men who had done any signal service to the republic. Sylla however paid no respect to this asylum of the polite arts; for, during the siege of Athens, he employed those very trees which formed the walks of the academy, to make engines of war to batter the place. Cicero had also a villa or place of retirement near Puzzuoli, to which he gave the name of academy, and where he used to entertain such of his friends as had a taste for philosophical conversations.

ACADEMY, among the moderns, is used to signify a society of learned men, established for the culture and advancement of arts and sciences.

Some authors confound academy with university; but, though they are nearly the same in Latin, they are two different things in English.

An university is a body composed of graduates in several faculties; of professors, who teach in the public schools; of regents or tutors, and students who learn under them, and aspire likewise to the same degree; whereas an academy is not intended to teach or profess any art, such as it is, but to improve it; it is not composed of novices, to be instructed, but of those who are more knowing; of persons of a distinguished capacity to confer and communicate their lights and discoveries to each other for their mutual advantage.

Most nations have at present academies, Russia not excepted; but Italy excels in this respect, at least in point of number. There are but few in England; the chief and only ones that merit any great attention,

tion, are called by these names, viz. the Royal Society, and the Society of Antiquaries of London. See *ROYAL SOCIETY*, and *ANTIQUARIAN SOCIETY*. See also *SOCIETY for the Encouragement of Arts, &c.* and *ROYAL ACADEMY for Painting, &c.*

There are however, besides these, an academy of music, and another of painting, each governed by their respective directors.

In France there are flourishing academies of all kinds, several at Paris, and some in the provincial towns.

French ACADEMY, instituted in the year 1635, by cardinal Richelieu, in order to perfect the French tongue. Its principal business is, in general, all matters of grammar, poetry, and eloquence: its form is very simple, and has never been altered. The members are forty in number, and not one of them has any superiority over the rest. No nobleman, or man of distinction, can be admitted into it upon any other account than that of being a man of letters: for cardinal Richelieu, who was well apprised of the great advantages arising from parts, was desirous that the mind should keep pace with rank and nobility. Their motto is *à l'immortalité*.

Royal ACADEMY of Inscriptions and Belles Lettres was established by Lewis XIV. who considered that it would be highly advantageous to France, to establish an academy, whose whole employment should be that of forming inscriptions, devices, and medals, and diffuse over those monuments an elegant taste, and that noble simplicity which constitutes its undoubted worth. The first society consisted of a small number chosen out of the members of the French academy, who, upon their establishment, met in the library of M. Colbert, from whom they received his majesty's orders. They undertook to compose, by means of medals, a connected history of the principal events of Lewis XIV's reign. This was an ample field of matter, but very great difficulties attended the execution. The ancients of whom there are so many medals remaining, have left us no other rules than the medals themselves, which had hardly before that time been considered, except for the sake of the beauty of the impression, or studied only for the attainment of historical knowledge. The moderns, who had, during the two last centuries, struck a great many medals, had given themselves but little trouble about rules, having neither followed nor prescribed any. Besides it was difficult to find, in the collections of this sort, three or four pieces, where genius had, with

any success, supplied the deficiency of method.

Royal ACADEMY of Sciences. This academy was established in 1666, by the care of M. Colbert, Lewis XIV. after the peace of the Pyrenees, being desirous of establishing the arts, sciences, and literature, upon a solid foundation, directed M. Colbert to form a society of men of known abilities and experience in the different branches of literature and science, who should meet together under the king's protection, and communicate their respective discoveries. M. Colbert, having conferred on this subject with those who were mostly celebrated for their learning, resolved to form a society of such persons as were conversant in natural philosophy and mathematics, to join them to other persons of skill in history and other branches of erudition, and to add such as were entirely engaged in what are peculiarly called the Belles Lettres, grammar, eloquence, and poetry. But an academy of this kind could not long subsist upon such a footing; and, therefore, the classes of Belles Lettres and history were reunited to the French academy: so that there only remained the classes of natural philosophy and mathematics. The mathematical class was composed of Mess. Carcavy, Huyghens, de Roberval, Frenicle, Auzout, Picard, and Buot; and the natural philosophers were Mess. de la Chambre, his majesty's physician in ordinary; Perrault, Ducloux, and Bourdelin, chymists; Pequet and Gayen, anatomists; Merchant, a botanist; and Duhamel, their secretary. These learned men, as well as their successors, have published several excellent works for the advancement of the sciences, besides which, the academy, in the years 1692 and 1693, published every month several separate tracts, which had been read at their meetings during the course of those years.

This academy, since its re-establishment in 1699, has been very exact in publishing every year a volume, containing either the works of its own members, or such memoirs as have been composed and read to the academy during the course of that year. To each volume is prefixed the history of the academy, or an extract of the memoirs, and, in general, of whatever has been read or said in the academy; at the end of the history are the elogiums on such academics as have died in the course of that year. The late M. Rouille de Meslay, counsellor to the parliament of Paris, founded two prizes, one of 2500, and the other of 2000 livres, which are distributed by the academy alternately every

every year; the subjects for the first must relate to physical astronomy, and those for the latter to navigation and commerce.

The academy has for its motto, *Invenit et perficit*.

There are many other academies in the provinces, particularly at Thoulouze, Bourdeaux, Soissons, Marseilles, Lyons, Pati, Montauban, Angiers, Amiens, Villefranche, &c.

Royal ACADEMY of Sciences and Belle Lettres of Prussia. This academy was established by Frederic I. king of Prussia, in 1700, and M. Leibnitz appointed the first president, when the list of the members was adorned with some of the greatest names in the republic of letters. This academy in 1710, published the first volume of its transactions, under the title of *Miscellanea Berolinensia*; and, though Frederic's successor gave but little encouragement to letters, the academy continued to publish new volumes in the years 1723, 1727, 1734, and 1740. At length Frederic III. the present king of Prussia, thought proper to give new vigour to the academy; and accordingly invited to Berlin such foreigners as were of the most distinguished merit in literature, and encouraged his subjects to prosecute the study and cultivation of the sciences, by giving ample rewards; so that, in 1743, there appeared a new volume of the *Miscellanea Berolinensia*, in which the additional force the academy had acquired plainly appeared. However, that prince did not think fit to confine himself there: he thought the royal academy of sciences of Prussia, in which, till that time, some minister or opulent nobleman had presided, would find an advantage from having a man of letters at its head, and accordingly conferred that honour on M. Maupertuis, a gentleman well known in every part of Europe. At the same time the king gave a new regulation to the academy, and took upon him the title of its protector. The academists hold two public assemblies annually; one in January, upon the present king's birthday; and the other in May, on the day of his accession to the throne. At the latter of these assemblies is given as a prize a gold medal of fifty ducats value: the subject for this prize is successively natural philosophy, mathematics, metaphysics, and erudition: for the academy has this in particular, that it includes metaphysics, logic, and morality, which are not the objects of any other; there being in this academy a particular class engaged in metaphysical disquisitions, called the class of speculative philosophy.

Imperial ACADEMY of Petersburg.

The Czar, Peter I. surnamed the Great, by whose means Russia shook off the yoke of barbarism, which had reigned so many ages in that kingdom, coming into England and France in the year 1717, and observing the great utility of literary societies and academies, resolved to establish one in his capital; and had actually taken the necessary measures for that purpose, when death put a period to his life in the year 1725. His successor, the Czarina Catherine, being fully informed of his intentions, laboured upon the same plan, and in a short time formed one of the most celebrated academies in Europe, composed of the most considerable foreigners, some of whom settled at Petersburg. Most of the foreigners who composed that academy being either dead or retired out of the kingdom, it was in a very languishing condition when the Czarina Elizabeth ascended the Russian throne: but that princess, happily for herself, named count Rasomowski president; who gave the academy a new body of statutes, and left nothing neglected which could re-establish its ancient splendor. This academy has this modest motto, *Paulatim*.

Royal Spanish ACADEMY is an academy for cultivating the Castilian tongue, established at Madrid, on the model of the French academy. The design of this society was laid by the duke d'Escalona, and approved of by the king in 1714, who declared himself its protector. It consists of twenty-four academists, including the director and secretary. Its device is a crucible on the fire, with this motto, *Limpia faja y da esplendor*.

ACADEMY of Natural curiosi, in Germany, was first founded in 1652, by Mr. Bausch, a physician, and taken, in 1670, under the protection of the emperor Leopold.

ACADEMY of Painting is a public school to which the painters resort, either to draw or paint, and where the sculptors model after a naked person, which they call a model. The royal academy of painting and sculpture at Paris, took its rise from the disputes that happened among the master-painters and sculptors in that capital. This indeed Le Brun, Sarazin, Corneille, and others of the king's painters, to form the design of a particular academy; and having presented a petition to the king, they obtained an arret dated the 20th of January 1648. Their meetings were at first held in the apartments of M. Chatmois, secretary to the marshal Schomberg, who drew up the first body of statutes for the academy.

The academy of painting holds a public assembly every day for two hours, in the afternoon, to which the painters resort, either to design or paint; and where the sculptors model after a naked person. There are twelve professors, each of whom keeps the school for a month; and there are twelve adjuncts to supply them in case of need. The professor, upon duty, places the naked man, who is called the model, in such a position as he thinks proper, and sets him in two different attitudes every week. In one week of the month he sets two models together, which is what they call setting the group. The paintings and models made after this model, as well as the copies made from them, are called academies, or academy figures. They have likewise a woman who stands for a model in the public school. Every three months, three prizes for design are distributed among the elites or pupils, as are two others for painting, and two for sculpture, every year. Those who gain the prizes of painting and sculpture are sent to Rome, at the king's expense, to study there and complete themselves in their art.

ACADEMY, the royal, of painting, sculpture, &c. in London, was incorporated in 1768.

ACADEMY, *Architecture*, a company of civil architects, established at Paris in the year 1671, by Mr. Colbert, under the direction of the superintendent of the buildings.

ACADEMY is also used in speaking of the seminaries of the Jews, where their rabbins and doctors instructed the youth of their nation in the Hebrew language, and explained to them the Talmud and the secrets of the Cabala. The Jews have always had these sort of academies since their return from Babylon: those of Tiberias and Babylon have been the most celebrated.

ACADEMY is also understood of a riding-school, or place where young gentlemen are taught to ride the great horse; as also the use of arms, dancing, vaulting, &c.

The ground set apart in an academy for riding, is called the manege, having usually a pillar in the center, and other pillars placed two by two at the sides.

ACADEMY *Figure*, in painting, are designs made after a model with a crayon or pencil.

ACATA, in botany, a tree growing naturally in Brazil to the height of a line: its bark is rough, and of a light ash colour, like elder; the leaves, which are smooth, glossy, and shining, are placed opposite to each other, of unequal size, but

in general about four fingers in length, and a finger and a half of two fingers broad, with a broad nerve running the whole length of them. This tree bears yellowish flowers, which are succeeded by plums, not unlike ours in figure and magnitude, of a yellowish colour, and an acid taste, each containing a ligneous stone, which is easily cracked, and incloses a kernel of a yellowish white colour. Its wood is red, and as light as a cork.

ACAJOU, *the Cassia or Cassipou Nut Tree*, in botany, a kind of plant producing a monopetalous flower, in the shape of a funnel, and divided into segments: out of the calyx arises a pistillum, surrounded with threads, or stamina, fastened to an ovary at the bottom of the flower: this ovary afterwards becomes a soft fruit, at the extremity whereof is a capsula, in the form of a kidney, inclosing a seed of the same kind. The acajou grows every where in Malabar, though it is a native of Brazil. They make a drink of the juice of this tree, which inebriates like wine. The kernel of the nut, when roasted, is very good to eat; but the shell is so acrimonious, that it excoriates the gums, in case you attempt to bite it. The dyers use the oil which they express from the shells of the nut of this tree in dying a black colour. The inhabitants of Brazil reckon their age by means of these nuts, for which purpose they lay up one of them every year.

ACANACEÆ, in botany, all chiffies that are prickly and have heads, are so called.

ACANGIS, a name given by the Turks to their hussars, who are light troops, fitter for skirmishing and pillaging, than to engage with regular troops; they are generally sent out in detachments to get intelligence, harraiss the enemy, attack convoys, and ravage the country.

ACANTHA, in botany, a name given to prickly or thorny plants.

ACANTHA, in anatomy, signifies the protuberance of the back-bone, commonly called *Spina Dorsi*.

ACANTHACEOUS, an epithet applied by botanists to plants of the prickly kind.

The word is formed from the Greek, and signifies a thorn.

ACANTHABOBES, in surgery, a kind of forceps used in extracting thorns, splinters, &c.

The word is also formed from the Greek.

ACANTHUS, in botany, a plant producing an irregular, monopetalous flower, terminated

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terminated in a ring at the bottom : the anterior parts, and the posterior, are in the shape of a ring. The place of the upper lip is filled with stamina, whose summits are like a brush ; out of the calyx proceeds a pistil, which is inserted into the ovary at the bottom of the flower, and becomes a fruit in the shape of an acorn, which is enveloped by the calyx ; this fruit is divided by a partition into two cells, each containing seeds, which are commonly of an irregular figure.

ACANTHUS, in architecture, an ornament resembling two species of plants of the same name, one of which is wild, and the other cultivated in gardens. The first is called in Greek *acantha*, which signifies a thorn ; and is that which the major part of the Gothic sculptors have imitated in their ornaments. The second is called in Latin *branca ursina*, because they pretend that it resembles a bear's foot. The ancient and modern sculptors have preferred the latter, and made use of it particularly in their capitals. Vitruvius says, that this plant gave occasion to Callimachus, the Grecian sculptor, to compose the Corinthian capital.

ACAPULCA ship taken by Admiral Anson, June 20, 1743, in his return from a voyage round the world.

ACAPULCO, a considerable town and port in Mexico, on the South Sea, has a fine harbour, from whence a ship annually sails to Manilla, near the coast of China in Asia ; and another returns annually from thence with all the treasures of the East Indies, such as diamonds, rubies, sapphires, the rich carpets of Persia, the camphire of Borneo, the benjamin and ivory of Pegu and Cambodia ; the silks, muslins, and calicoes of the Mogul's country ; the gold-dust, tea, china-ware, silk, and cabinets of China and Japan ; besides cinnamon, cloves, mace, nutmegs, and pepper ; this single ship generally contains more riches than many whole fleets. Long. 102. 29. W. Lat. 17. 30. N.

ACARA, a small Brazilian fish, about three inches in length, and its body resembling that of a perch. The mouth is narrow, and the jaws as rough as a file. The eyes are not large, but have a golden circle, and the back fins connected together. The tail is oblong, and the scales are pretty large, of a silver colour, but on the head, back, and sides, they are mixed with umber. In the middle of each side there is a large black spot, as also near the root of the tail. It is a river fish, and keeps constantly in fresh water. *Brook's Natural History.*

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ACARA-PITOMBA, a beautiful Brazilian fish, resembling our mullet, and near two feet in length. Its tail terminates in two oblique horns. Along the middle of each side runs a broad and beautiful gold-coloured line, from the gills to the tail. Its back also down to this line is variegated with spots of the same colour ; while its sides below that line are decorated with short longitudinal lines of a somewhat paler colour. Its belly is white, and its fins yellow.

ACARI, the name of insects that breed under the skin. Aristotle calls the small insects that breed in wax by the same name.

ACARICABA, in botany, a Brazilian plant, whose roots are aromatic, and may be placed in the first class of aperitives.

ACARON, in botany, wild myrtle or butcher's broom. It is principally used in obstructions of the liver, &c.

ACATALEPSY, among the ancient philosophers, implied the impossibility of conceiving or comprehending a thing.

The word takes its formation from the Greek.

ACATASIATOS, a term used by the ancient physicians to signify irregular fevers, where paroxysms are uncertain, and the appearance of the urine perpetually changing.

The word is Greek.

ACAULIS, in botany, a term applied to plants, whose flowers rest on the ground, having no caulis or stalk.

The word is compounded of *a neg.* and *caulis*, a stalk.

ACAB, the name of a bird resembling our common hen, frequently found wild in the Phillippine islands.

ACCA-LARENTIA, a pagan goddess of the Romans. She was the wife of Faustulus, shepherd to king Numitor, and nurse of Romulus and Remus. Romulus out of gratitude, decreed her divine honours after her death, and appointed a festival, called from her Larentalia ; which was celebrated, according to Varro, in April ; but according to Ovid, in December.

ACCEDAS ad curiam, in law, a writ which lies for him who has received false judgment, or fears partiality in a court-baron, or a hundred court. It is directed to the sheriff, and issued out of chancery ; but returnable into the king's bench, or common pleas. In the register of writs, it is said to be a writ which lies as well for judgment delayed, as for false judgment ; and that it is a species of writ, *Recordare*, the

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the sheriff being obliged to make record of the suit in the inferior court, and certify it into the king's court.

ACCELERATED implies, quickened, continually increasing. Thus, accelerated motion is a motion continually increasing.

The word is Latin, *acceleratus*, compound of *ad*, to, and *celer* swift.

ACCELERATED Motion, in mechanics, is that whose velocity is constantly increased; and, if the accessions of velocity be equal in equal times, the motion is said to be uniformly accelerated. This comes chiefly under consideration, in the descent of heavy bodies, by the force of gravity.

Notwithstanding various opinions on this subject, the cause of *acceleration* is nothing mysterious; the principle of gravitation, which determines the body to descend, determining it to be *accelerated* by a necessary consequence.

A body having once begun to descend through the impulse of gravity, that state is now, by Sir Isaac Newton's first law, become as it were natural to it, inasmuch that, were it left to itself, it would for ever continue to descend, though the first cause of its descent should cease. But, besides this determination to descend, impressed upon it by the first cause, which would be sufficient to continue the degree of motion already begun to infinity, new impulses are continually superadded by the same cause, which continue to act upon the body already in motion, in the same manner as if it had remained at rest: there being then two causes of motion, acting both in the same direction, it necessarily follows, that the motion which they unitedly produce, must be more considerable than what either could produce separately; and, as long as the velocity is thus increased, the same cause still subsisting to increase it yet more, the descent must of necessity be continually accelerated. Supposing that gravity, from whatever principle, acts uniformly upon all bodies at the same distance from the center of the earth, dividing the time which the heavy body takes up in falling to the earth into infinitely small equal parts, this gravity will impel the body towards the center of the earth, in the first infinitely short instant of the descent. If, after this, we suppose the action of gravity to cease, the body will continue perpetually to advance uniformly towards the earth's center, with an infinitely small velocity, equal to that which resulted from the first impulse. But then, if we suppose that the action of gravity continues in the second instant, the body will receive a new impulse towards

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the earth equal to that which it received in the first instant, consequently its velocity will be doubled; in the third instant it will be tripled; in the fourth, quadrupled, and so on. For the impulse made in any preceding instant, is no ways altered by that which is made in the following one; but they are accumulated on each other: wherefore, the instants of time being supposed infinitely small, and all equal, the velocity acquired by the falling body will be in every instant, as the times from the beginning of the descent, and consequently the velocity will be proportional to the time in which it is acquired. The motion of an ascending body, or of one that is impelled upwards, is diminished or retarded by the same principle of gravity, acting in a contrary direction, after the same manner that a falling body is accelerated. A body projected upwards, ascends until it has lost all its motion, which it does in the same interval of time that the same body would have taken up in acquiring by falling, a velocity equal to that with which the falling body began to be projected upwards, and consequently the heights to which bodies projected upwards, with different velocities, arrive, are to each other as the square of those velocities.

ACCELERATED Motion of Pendulums.

See PENDULUM.

ACCELERATED Motion of Projectiles.

See PROJECTILES.

ACCELERATION, in philosophy, implies an increase of velocity in the motion of a body; and is opposed to retardation, by which term is understood a diminution of velocity.

ACCELERATION, in astronomy, is the time whereby a fixed star in one diurnal revolution anticipates the mean revolution of the sun, being 3', 56", in one day.

ACCELERATOIRES Urinae, in anatomy, two muscles of the penis, whose principal office is to expedite the discharge of the urine and semen. Authors have erred in assigning the origination of these muscles, either to the sphincter ani, or tubercles of the ossa ischia. They arise fleshy from the superior part of the urethra, as it passes under the ossa pubis, and encompassing the external part of the bulb of its cavernous body, both muscles meet on the inferior part, corresponding with the seam of the skin in the perineum, and continue so united for the space of about six inches; after which they separate from each other, and ascend to their insertions on each side of the corpora-cavernosa penis. Besides the use generally ascribed to these muscles, in compressing the urethra in the discharge

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of the urine, and promoting the ejaculation of the semen, (which action is chiefly performed by the last described part of them embracing the urethra, as they pass to their insertions on each side the cavernous bodies of the penis); they also assist the erectores penis in their erection, by driving the blood contained in the bulb of the cavernous body of the urethra towards the glands in greater quantities, whereby it becomes distended, the veins, which carry the reflux blood from the corpus cavernosum urethra, at that time being also compressed by the swelling of these muscles. *Cooper.*

ACCENSION, in philosophy, the act of kindling, or setting a body on fire.

The word is compounded of *ad*, and *cando*, to shine.

ACCENT, an inflection of the voice, giving to each syllable of a word its proper pitch with regard to height or lowness.

The word is compounded of *ad* to, and *canto*, to sing.

ACCENT, in grammar, a certain mark or character placed over a syllable, to direct the manner of its pronunciation, and regulate the inflection of the voice in reading. We reckon three grammatical accents, viz. the acute, the grave, and the circumflex.

The Greeks seem to have been the first who introduced the use of accents in writing. The author of *La Methode Greque*, observes, that the right pronunciation of the Greek language, being natural to the Greeks, it was needless for them to mark it by accents, in their writings: so that, according to all appearance, they only began to make use of them so low as the time in which the Romans, being curious to learn the Greek tongue, sent their children to study at Athens, thinking thereby to fix the pronunciation, and to facilitate it to strangers, which happened, as the same author observes, a little before Cicero's time.

The acute accent, which was written from right to left, ['] shewed, that the voice should be raised in pronouncing that vowel on which it was marked. The grave accent, which was wrote thus [`] on the contrary, denoted that the voice should be lowered. The circumflex accent is compounded of the acute and grave, though in length of time the transcribers rounded it after this manner [^]; but it is only used in the Greek. This accent was designed to give us to understand, that, after having first raised the voice, it should be lowered upon the same syllable. The Latins have made the same use of these three accents. That elevation and sinking of the voice were more sensible among the

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ancients than among us, because their pronunciation was more elevated and tuneful. However, we likewise have a rising and lowering of the voice in our manner of speaking, and that independently of the other words of the phrase; so that the syllables of our words are raised or sunk, according to the prosodic or tonic accent, independent of the pathetic, i. e. of the tone that passion and sentiment gives to the whole phrase; for it is the nature of every voice, says the author of *La Methode Greque*, to have some elevation, which keeps up the pronunciation; and this elevation is afterwards moderated and diminished, and is not laid upon the succeeding syllables. This difference between the pronunciation of the ancients and ours, appears to be the reason why, though we have a quantity as they had, yet the difference of our long and short quantities not being equally sensible in all our words, our verses are only formed by the harmony which results from the number of syllables: whereas the Greek and Latin verses draw their harmony from the number of feet adapted by certain combinations of long and short syllables. The dactyl, iambic, and other feet, enter in common discourse, says Cicero, and the hearer easily knows them; *Eos facile agnoscit auditor.* Cic. Orat. n. lvi. "It in our theatre, says he, an actor pronounces a syllable short or long, or with a grave or acute tone, otherwise than as it ought to be pronounced, all the people cry out against it. However adds he, the people have not studied the rule of our prosodia, and only feel themselves offended by the actor's pronunciation; but cannot explain how, or in what manner: in this particular, there is no other rule but the discerning it by ear; and with that help only, which custom and habit has given, they know the long and short, and distinguish the grave from the acute."

ACCENT, in rhetoric, a particular manner of expression.

ACCENT also implies a certain inflection of the voice; or a peculiar tone and manner of pronunciation, contracted from the country, where a person was bred.

ACCENT, in music, a modulation of the voice to express a passion.

ACCEPTANCE, implies the consent of the person who accepts or receives.

The word is compounded of *ab*, from, and *capio*, to receive.

ACCEPTANCE, in common law, is the tacitly agreeing to some act which another has done.

ACCEPT-

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ACCEPTANCE, in commerce, the signing or subscribing a bill of exchange, by which the acceptor obliges himself to pay the contents of the bill. We should therefore be careful not to accept any bills that we have no effects in hand to answer, or that we are not sure will be remitted within the time; because, when a bill is once accepted, the acceptor becomes the principal debtor, and the bill must be absolutely paid when it becomes due, otherwise the acceptor is liable to be sued for the default of payment. It is usual to leave bills of exchange with those upon whom they are drawn, for acceptance. But the authors, who have wrote upon commerce, observe, that such a custom is dangerous. However, if the person with whom a bill of exchange hath been left for acceptance, will keep it in his hands under any pretence whatsoever, the difficulty which he makes of returning it, is tantamount to an acceptance, and he will be obliged to pay the contents.

Bills payable at sight are not accepted, because they must either be paid when presented, or else protested for want of payment.

The acceptance of bills payable at a fixed day, at usance, or double usance, &c. need not be dated; because the time is reckoned from the date of the bill: but it is necessary to date the acceptance of bills payable at a certain number of days after sight, because the time does not begin to run till the date of that acceptance. This kind of acceptance is made thus: *Accepted such a day and year*, and signed.

In general, the person to whom a bill of exchange is made payable ought to demand the acceptance of the person on whom it is drawn, and that in the full extent of the terms of the bill, and on refusal of acceptance to return it with protest: this he should do for his own security, as well as for that of the drawer. Thus, if the bearer of a bill consents to an acceptance at twenty days sight, instead of eight days expressed in the bill, he runs the risk of the twelve days prolongation; so that he can have no recourse against the drawer, should the acceptor break in that time. Again, if a bill be drawn for three thousand pounds, and the bearer agrees to take an acceptance for two only, and should receive no more than that sum, the remaining thousand would be at the hazard of the bearer, as well as in the former case. If therefore a bill be only accepted in part, or for a longer time than that expressed in it, the bearer ought to protest it, at least for the sum not accepted.

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Again, if the acceptor fails or refuses to make payment when the bill becomes due, it is necessary to get the bill immediately protested by a public notary, to be sent along with the protest to the remitter, to procure a satisfaction from the drawer. By statute, the inland bills of exchange must be accepted by signing or endorsing in writing, and protested for refusal of such acceptance, otherwise the drawer is not liable to costs; it must likewise be returned to the drawer within fourteen days. However, such protest is not necessary, unless the value be acknowledged in the bill to be received, and unless the bill be drawn for twenty pounds or upwards. A bill drawn on two jointly, must have a joint acceptance, otherwise be protested; but if on two or either of them, the acceptance of one is sufficient.

ACCEPTATION, in grammar is the signification of sense in which a word is taken and received. Most words in every language yet known, have several acceptations.

ACCEPTILLATION, in the civil law, an acquittance given by a creditor to a debtor, without receiving any money.

ACCEPTOR, one who accepts a bill of exchange.

ACCESS, in a general sense, the approach of one thing towards another: in a more particular acceptation, the permission or leave to come near a person or thing.

The word is compounded of *ad*, to, and *cedo*, to succeed, or approach.

ACCESS, among physicians, is the beginning of a paroxysm, or fit of an intermitting disease.

ACCESSIBLE, that which may be approached, or to which access may be had.

ACCESSIBLE Distance. See **DISTANCE**.

ACCESSION, the act of approaching, or going to a place, person, or thing. In a more restrained acceptation, it signifies the act whereby a thing is joined or united to something that previously existed.

ACCESSION is used to signify a prince's succession to the throne; and the act of engaging and becoming a party in a treaty before concluded between other powers.

ACCESSION, in the healing art, implies the beginning of the fit or paroxysm of an intermitting fever.

ACCESSORIOUS, a name given to a particular nerve by Dr. Willis. It belongs to the eighth pair, and arises by several filaments from both sides of the medulla spinalis of the neck.

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ACCESSORY, or **ACCESSARY**, in a general sense, implies whatever accedes, or is added to another and more principal object.

ACCESSORY, or **ACCESSARY**, in law, a person guilty of a felonious offence, not principally, but by participation, as by command, advice, or concealment.

There are accessories before the fact, and accessories after it. An accessory before the fact is he that, being present at the time of the felony committed, procures, counsels, commands, or abets another to commit a felony. This is an offence greater than the accessory after; and therefore, in many cases, clergy is taken away from accessories before it, which yet is not taken away from accessories after, as in petit treason, murder, robbery, and wilful burning. Accessories after the fact is, where a person, knowing the felony to be committed by another, receives, relieves, comforts, or assists the felon.

ACCIDENT, something produced, casually, or by chance without any previous intention in the agent.

ACCIDENT, in metaphysics, something additional or superadded to an object, not essentially belonging to it, and without which the object can subsist.

ACCIDENT, in heraldry, an additional note or mark in a coat of arms, which may be either omitted or retained, without altering the essence of the armour.

ACCIDENT, among grammarians, implies a property attached to a word, without entering into its essential definition: for every word notwithstanding its signification, will be either primitive, derivative, simple, or compound, which are the accident of words.

A word is said to be primitive, when it is taken from no other word in the language in which it is used: thus *heaven*, *king*, *good*, are primitive words. It is said to be derivative, when it is taken from some other word: thus *heavenly*, *kingdom*, *goodness*, &c. are derivatives. A simple word is easily distinguished from a compound: thus *just*, *justice*, are simple words; *unjust*, *injustice*, are compound.

Besides these accidents, common to all sorts of words, each particular species has its accidents: thus the accidents of the noun substantive are the gender, declension, and number: and the adjective has another accident, namely, the comparison.

ACCIDENT, in logic, is when we join a confused and indeterminate idea of substance with a distinct idea of some mode, because it is then capable of representing every thing to which that mode can belong.

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ACCIDENT, among physicians, signifies a revolution occasioned by some new cause, which adds strength to the disease already existing. The most celebrated practitioners in the healing art recommend the utmost attention to the violence of accidents, because their continuance may augment the distemper to such a degree as to render it incurable.

ACCIDENTAL, in a general sense, implies something that happens casually or by accident, or that is not essential to its subject.

ACCIDENTAL, in philosophy, is applied to that effect which flows from some cause intervening by accident, without being subject to general laws, or regular returns. In this sense *accidental* is opposed to *constant and principal*. Thus the sun's place is, with respect to the earth, the constant and principal cause of the heat in summer, and the cold in winter; whereas winds, snows, and rains, are the accidental causes, which often alter and modify the action of the principal cause.

ACCIDENTAL Point, in perspective, the point in the horizontal line where the projections of two lines parallel to each other meet the perspective plane.

ACCIPENSER, in natural history, genus of fishes, whose mouths are tubular and without teeth. They have only a single hole or aperture of the gills on each side; the body is oblong, and generally furnished with seven fins. There are only two species of this fish, namely, the sturgeon and huso, or ingslags fish.

ACCIPITER, in ornithology, the name of a genus of birds, whose distinguishing characteristic is a crooked or hooked bill. This genus is subdivided into three classes, the parrot, the owl, and the hawk kinds.

ACCISMUS, in rhetoric, a species of irony.

ACCLAMATION, a token of joy, approbation, or applause, whereby the public testify their esteem and approbation.

The word is compounded of *ad*, to or at, and *clamo*, to shout, or cry aloud.

The ancient forms of acclamation, were different among different nations. The Hebrews used to cry *Hosannab*, and the Greeks *Ayabn* - *τυχη*, good fortune. Herodotus mentions some magistrates at Athens who were elected by acclamation, though it was not indicated by shouts, but by holding up of hands. Among the Romans there were three different kinds of acclamation, that of the people, of the senate, and of the assemblies of the learned. The acclamations of the people were originally nothing more than the confused shouts

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shouts of the multitude transported with joy; the simple undisguised expressions of public approbation. But under the emperors, this impetuous motion, to which the people abandoned themselves as it were by enthusiasm, became an art, and a studied harmony; a musician set the tune, and the people giving two cheers, alternately repeated the form of the acclamation. The most common forms were *felicitur, longiorem vitam, annos felices*; those of triumph were verses in praise of the conqueror, the soldiers and people crying out at certain intervals, *io triumpho*. The acclamations of the senate, though more serious, had the same end, that of honouring, and often flattering the prince. The forms generally used to testify their approbation of his propositions, were, *omnes, omnes, equum est, iustum est*. It was customary for men of letters to recite the compositions in the Capitol, or some temple, before a numerous assembly; and the acclamations were there given nearly in the same manner as at the public shows.

ACCLIVIS, in anatomy, the name by which some writers call the oblique ascenders.

ACCLIVITY, the slope or ascent of a line or plane considered in its ascending direction. The word is compounded of *ad* and *clivus*, a slope. Some writers on fortification have used the term acclivity as synonymous with talus; but the latter properly signifies the slope in general, whether it be considered as ascending or descending.

ACCLOYED, in farriery, signifies pricked.

ACCOMMODATION, among divines, implies the application of what is said of one person or thing to another.

The word is compounded of *ad* to, and *commodus*, commodious.

ACCOMMODATION, in philosophy, is the application of one thing to another by analogy.

ACCOMMODATION, in law, is an amicable agreement between two contending parties.

ACCOMPANYMENT, in music, the instruments that accompany a voice to render the melody more agreeable. The manner of accompanying depends more upon practice and taste, than upon any certain rules that can be given.

ACCOMPANIMENTS, in painting, the objects added either by way of ornament or probability. Thus dogs, guns, and game, are the proper accompaniments of a hunting piece.

ACCOMPLICE, in law, one who was privy to, or assisted in, the perpetration of some crime.

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ACCOMPLISHMENT, in a general sense, implies the execution and success of a thing we before proposed to ourselves, or planned. The word is compounded of *ad*, and *compleo*, to finish, or fulfill. The accomplishment or completion of the prophecies of the Old Testament, in the person of our Saviour, clearly shews that he was the Messiah. The accomplishment of a prophecy may be done two ways, either directly, or by accommodation: for one and the same prophecy may have several accomplishments at different times: as, for instance, that of our Saviour, touching the destruction of Jerusalem, which must have a second accomplishment in the times which shall immediately precede the last judgment.

ACCOMPT. See **ACCOUNT**.

ACCORD, in music.

ACCORD, in law, an accommodation between contending parties, by means of an offer made by one, and accepted by the other.

ACCORD, in painting, signifies the harmony that reigns among the lights and shades of a picture.

ACCORNED, in heraldry, is applied to every animal borne in an escutcheon, when its horns are of different colours from those of the real animal; when it is said to be accorned.

ACCOUNT, or **ACCOMPT**, in arithmetic, a computation of the number of certain things, whether they relate to time, weight, measure, &c.

ACCOUNT, is used to signify the books in which merchants, &c. enter all their business.

ACCOUNT in Company is an account kept by traders in partnership, containing all the articles relating to their joint trade.

ACCOUNT in law, a writ or action which lies against a bailiff, or receiver, who refuses to give a proper account to another appointed for that purpose. The proceedings upon this action being difficult, dilatory, and expensive, it is now seldom used, especially if the party has any other remedy, as debt, covenant, case, or other action; or if the demand be of consequence, and the matter of an intricate nature: for, in such cases, it is more advisable to have recourse to a court of equity, where matters of account are more commodiously adjusted, and more advantageously determined with regard to both parties; the plaintiff being in that court entitled to discovery of books, papers, and the defendant's oath: and on the other hand, the defendant allowed to discount the sums paid or expended by him, and all reasonable allow-

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ances, and to discharge himself of sums under forty shillings by his own oath, if by answer or other writing he charges himself with such. He is also entitled, after the account is settled, to a decree in his favour, if any thing appears to be due to him on the balance.

Chamber of ACCOUNTS, the name of a court in France, answering nearly to our Exchequer.

ACCOUNTANT, or **ACCOMPTANT**, a person appointed to keep the accounts of a company, office, &c. Also one skilled in the nature of accounts, or who makes the study and practice of accounts his business.

ACCOUNTANT-GENERAL, an officer in the Court of Chancery, appointed by act of parliament to receive all monies lodged in court, and convey the same to the bank of England for the better security.

ACCRETION, is the encrease or augmentation of a body by the addition of new parts.

The word is compounded of *ad*, to, and *cresco*, to grow.

ACCRETION in civil law, implies the property of a vague or unoccupied thing, acquired by its adhering to or following another thing already occupied.

ACCUSATION, in law, the act of accusing, or the charge brought against any person for a crime.

The word is compounded of *ad*, to and *causo*, to blame.

By Magna Charta, no man should be imprisoned or condemned on any accusation, without trial by his peers, or the law. None shall be vexed with any accusation, but according to the law of the land: and no man may be molested by petition to the king, &c. unless it be by indictment, or presentment of lawful men, or by process at common law. Promoters of suggestions are to find surety to pursue them, and if they do not make them good, shall pay damages to the party accused, and also a fine to the king. No person is obliged to answer upon oath to a question whereby he may accuse himself of any crime, &c.

ACCUSATIVE, in the Latin grammar, is the fourth case of nouns, and signifies the relation of the noun on which the action implied in the verb terminates; and hence, in such language as have cases, these nouns have a particular termination called accusative: as *Augustus vicit Antonium*, Augustus vanquished Antony. Here *Antonium* is the noun, on which the action implied in the verb *vicit* terminates;

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and therefore must have the accusative termination. Ovid, speaking of the palace of the sun, says, *Materiam superabat opus*. The work surpassed the materials. Here *materiam* has the accusative termination; because it determines the action of the verb *superabat*.

In the English language there are no cases, except the genitive, the relation of the noun being shewn by the assistance of propositions, as *of*, *to*, *from*, &c. By this means we are not embarrassed with the trouble and difficulties attending other languages.

ACER, in botany, the maple-tree.

ACER Majus, the great maple called also the sycamore. See **Great MAPLE**.

ACETABULUM, in anatomy, a large cavity of a bone which receives another convex bone in order to admit of a circular motion in the joint thus articulated. Thus the large cavity found in the *os ilia innominata* is particularly called the acetabulum, which receives the head of the femur, or thigh-bone. It is formed by the juncture of the *os ilium*, *ischium*, and *pubes*.

ACETABULUM likewise signifies a kind of glandular substance, many of which are found in the placenta of some animals.

ACETABULUM, in botany, a genus of sea plants, whose leaves are shaped like a basin.

ACETOSA, in botany, common sorrel. It has a long, fibrous, yellowish, bitter root, and long oval leaves placed alternately on the stalk, which is striated a foot in length, and divided into several branches. The impalement of the flower is composed of three small leaves bended backwards. It agrees with the dock in all its characters, except in having an acid taste. It is but a small plant in the fields, but in the gardens produces large leaves. It must be sown early in the spring, in a shady moist border; and, if the plants are afterwards removed into another shady border, they will produce still larger leaves, and continue much longer. Sorrel is used in medicine to cool and quench thirst; and the decoction of the leaves makes a useful drink in fevers. It is excellent against the scurvy, and in some cold countries they use a mixture of the juices of sorrel and scurvy-grass against this disease with success. *Brookes's Natural Hist.*

ACETOSA Rotundifolia, round-leaved or French sorrel. This plant has the same characters as the former, excepting the leaves, which are sometimes almost round.

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round. This is the best sort for kitchen use, and therefore is often planted in gardens. The roots are very apt to spread, by which means it is easily propagated, and must be planted at greater distances than the former, namely, a foot at least. It is cooling like the former, quenches thirst, and excites an appetite. The decoction of it is good in bilious fevers. *Brookes's Natural Hist.*

ACETOSE, or ACETOUS, an epithet applied to such liquors, fruits, &c. as have a sour taste.

ACETUM, vinegar. See VINEGAR.

ACETUM, *distillatum*, distilled vinegar. See *Distilled VINEGAR*.

ACHAT, in law, implies a purchase or bargain. And hence probably purveyors were called *Achatori*, from their making bargains.

ACHE, or ACH, a severe pain in any part of the body, as the head-ache, tooth-ache, &c. See HEAD-ACHE, TOOTH-ACHE, &c.

* ABHELOUS, in fabulous history, wrestled with Hercules, for Deianira, daughter of Oeneus: but as Abhelous had the power of assuming all shapes, the contest was long dubious: at last, as he took that of a bull, Hercules tore off one of his horns, so that he was forced to submit, and to redeem it by giving the conqueror the horn of Amalthæa, the same with the Cornucopia, or horn of plenty, which Hercules having filled with a variety of fruits, consecrated to Jupiter.

ACHERNER, in astronomy, a star of the first magnitude in the southern extremity of the constellation Eridanus. Its longitude is $11^{\circ} 48' 20''$ of Pisces, and its latitude $32^{\circ} 46' 3''$ S.

*ACHERON, in heathen mythology, a river of Epirus, which according to some, rose out of the lake Acherusia in Epirus, and emptied itself into the bay of Ambracia. Others make it a sulphureous stinking lake near cape Misenum, in the bay of Naples. The poets feigned it to be the son of Titan or Terra, or as others say, of Ceres; and that he was born in a cave without a father, and sent to hell for furnishing the Titans with water during their war with the gods, where he was turned into a river, over which departed souls were ferried.

ACHILLEA, in the Linnean system of botany, a genus of a plant of the syn-genesia class, comprehending the millefolium and ptarmica of Tournefort.

*ACHILLES, in fabulous history one of the greatest heroes of ancient Greece, was the son of Peleus and Thetis. He was

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a native of Phthia, in Thessaly: and his mother fed him by day with ambrosia, and by night covered him with celestial fire. She dipped him also in the waters of the river Styx, by which his whole body became invulnerable, except that part of his heel by which she held him; and afterwards entrusted him to the care of the centaur Chiron, who, to give him the strength necessary for martial toil, fed him with honey, and the marrow of lions and wild boars, &c. To prevent his going to the siege of Troy, she disguised him in female apparel, and hid him among the maidens at the court of king Lycomedes: but Ulysses discovering him, persuaded him to follow the Greeks. Achilles distinguished himself by a number of heroic actions; and having quarrelled with Agamemnon on account of Briseis, resolved no longer to concern himself in the war; till hearing that Hector had killed his friend, Patroclus, he fought with him, killed him, fastened his corpse to his chariot, and dragged it round the walls of Troy. At last Paris treacherously wounded him in the heel with an arrow, while he was in a temple treating about his marriage with Philoxena, daughter to king Priam. Of this wound he died, and was interred on the promontory of Sigæum, and after Troy was taken, the Greeks sacrificed Philoxena on his tomb. It is said, that Alexander seeing this tomb, honoured it by placing a crown upon it: at the same time crying out, that Achilles was happy in having, during his life, such a friend as Patroclus; and after his death, a poet like Homer.

ACHILLES, an appellation sometimes given to the principal argument made use of by each sect of ancient philosophers in defence of their system.

Tendo ACHILLES, in anatomy is the tendon formed by the tails of several muscles, and inserted into the os calcis. It has its name from the fatal wound Achilles is said to have received before the walls of Troy.

ACHOR, in physic, a species of the herpes, and appears with a crusted scab formed by a humour somewhat viscid, and resembling ichor. It is occasioned by a salt sharp serum oozing through the skin.

ACID, a name for every thing that affects the organs of taste with a pungent sourness. Acids are the most simple of all saline substances with regard to their taste; and by that particular they are chiefly known. They have also the property of turning all the blue and violet colours of vegetables red, which distinguishes

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guishes them from all other salts. The form under which acids most commonly appear, is that of a transparent liquor; though solidity is their natural state. This is owing to their affinity with water; which is so great, that, when they contain but just as much of it as is necessary to constitute them salts, and consequently have a solid form, they rapidly unite with that fluid the moment they come into contact with it: and, as the air is always loaded with moisture, and aqueous vapours, its contact alone is sufficient to liquify acid salts; because they unite with its humidity, imbibe it greedily, and by that means become fluid. We therefore say, they attract the moisture of the air. This change of a salt from a solid to a fluid state, by the sole contact of the air, is also called *deliquium*; so that when a salt changes in this manner from a solid into a fluid form, it is said to run *per deliquium*. Acids have a great affinity with earths: that with which they most readily unite, is that called absorbent earth. They seem to exert no action at all upon vitrifiable earths, such as sand, and some other kinds, at least while they continue in their natural state. When an acid liquor is mixed with an absorbent earth, for instance with chalk, these two substances instantly unite with so much impetuosity, especially if the acid liquor be thoroughly dephlegmated, that a great ebullition is immediately produced, attended with considerable hissing, heat, and vapours, which rise the very instant of their conjunction. From the combination of an acid with an absorbent earth, there arises a new compound, which some chemists have called *sal salsum*; because the acid, by uniting with the earth, loses its sour taste, and acquires another not unlike that of the common sea salt; yet varying according to the different sorts of acids and earths combined together. The acid at the same time loses its property of turning vegetable blues and violet colours, red.

Universal or Vitriolic ACID is so called because it is in fact the acid which is most universally diffused through all nature, in waters, in the atmosphere, and in the bowels of the earth. But it is seldom pure, being almost always combined with some other substance. That from which we obtain it with most ease, and in the greatest quantity is vitriol: and this is the reason why it is called the vitriolic acid, the name by which it is generally known. See *VITRIOL*.

When the vitriolic acid contains but little phlegm, yet enough to give it a fluid

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form, it is called oil of vitriol. See *Oil of VITRIOL*.

If the vitriolic acid contain much water, it is then called *Spirit of VITRIOL*. When it does not contain enough to render it fluid, and so is in a solid form, it is named the *Icy Oil of VITRIOL*. When oil of vitriol highly concentrated is mixed with water, they rush into union with such impetuosity, that the moment they touch each other, there arises a hissing noise like that of red iron plunged in cold water, together with a very considerable degree of heat proportioned to the degree in which the acid was concentrated. If, instead of mixing this concentrated acid with water, you only leave it exposed to the air for some time, it attracts and imbibes the moisture. Both its bulk and its weight are increased by this accession; and if it be under an icy form, that is, if it be concentered, the phlegm thus acquired will soon resolve itself into a fluid. The addition of water renders the vitriolic acid, and indeed all other acids, weaker in one sense; that is, they leave on the tongue a much fainter taste of acidity, and are less active in the solution of some particular bodies; but occasions no change in the strength of their affinities; it even, in some cases, enables them to dissolve several substances, which, when well dephlegmated, they are incapable of attacking. The vitriolic acid, combined to the point of saturation with a particular absorbent earth, the nature of which is not yet well known, forms a neutral salt that crystallizes. This salt is called *Alum*, and the figure of its crystals is that of an octahedron or solid of eight sides. See *ALUM*.

The vitriolic acid is capable of uniting with the phlogiston, or rather it has a greater affinity with it than with any other body: whence it follows that all compounds, of which it makes a part, may be decomposed by means of the phlogiston. From the conjunction of the vitriolic acid with the phlogiston, arises a compound called *Mineral Sulphur*; because it is found perfectly formed in the bowels of the earth. It is also called sulphur vivum, or simply, sulphur. See *SULPHUR*.

Nitrous ACID, a particular kind of acid, which combined with an alkaline salt, forms a body called nitre. See *NITRE*. It is not certainly known what constitutes the difference between the nitrous and the vitriolic acid, with regard to the constituent principles of each. The nitrous acid, combined with certain absorbent earths, such as chalk, marble, bones, forms neutral salts which do not crystallize; and which,

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which, after being dried, run in the air *per deliquium*.

All those neutral salts, which consist of the nitrous acid, joined to an earth, may be decomposed by a fixed alkali, with which the acid unites, and deserts the earth; and from this union of the nitrous acid, with a fixed alkali, results a new neutral salt, which is called *Nitre* or *Salt-Perre*. See **NITRE**.

The nitrous acid hath not so great an affinity with earths and alkalis, as the vitriolic acid hath with the same substances; whence it follows, that the vitriolic acid decomposes all neutral salts arising from a combination of the nitrous acid, with an earth or an alkali. The vitriolic acid expels the nitrous acid, unites with the substance which served it for a basis, and forms therewith a neutral salt, which is either an alum, a selenites, or a vitriolated tartar, according to the nature of that basis.

The nitrous acid, when thus separated from its basis by the vitriolic acid, is named *Spirit of Nitre*, or *Aqua Fortis*. See *Spirit of NITRE*, and *AQUA Fortis*.

Marine ACID, or the **ACID of Sea-Salt**, an acid as is obtained from such sea-salt as is generally used in kitchens. See *Spirit of SEA-SALT*. The acid of sea-salt, like the other two, seems to have a greater affinity with the phlogiston than with fixed alkalis. We are led to this opinion by a very curious operation, which gives reason to think that sea-salt may be decomposed by the proper application of a substance containing the phlogiston. From the marine acid, combined with a phlogiston, results a kind of sulphur, differing from the common sort in many respects; but particularly in this property, that it takes fire of itself upon being exposed to the open air. This combination is called *Phosphorus*. See the article **PHOSPHORUS**. From what has been said of the union of the acid of sea-salt with a fixed alkali, and of the neutral salt resulting from that combination, it may be concluded that this neutral salt is no other than the common kitchen salt. But it must be observed that the fixed alkali, which is the neutral basis of the common salt obtained from seawater, is of a sort somewhat different from fixed alkalis in general, and hath certain properties peculiar to itself. If the acid of sea-salt be separated from its basis, by means of the vitriolic acid, it is easy to see that, when the operation is finished, the salt we have been speaking of must be the result. Glauber, a famous chymist, was the first who extracted the spirit of

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salt in this manner, examined the neutral salt resulting from his process, and finding it to have some singular properties, called it his *Sal mirabile*, or wonderful salt: on this account it is still called Glauber's *Sal mirabile*, or plainly Glauber's salt. See *SAL mirabile Glauberi*.

When the basis of sea-salt is combined with the nitrous acid to the point of saturation, there results a neutral salt, or a sort of nitre, differing from the common nitre; first, in that it attracts the moisture of the air pretty strongly, and this makes it difficult to crystallize; secondly, in the figure of its crystals, which are parallelopipeds; and this has procured it the name of quadrangular nitre.

Common salt, or the neutral salt, formed by the combining the marine acid with this particular sort of fixed alkali, has a taste well known to every body. The figure of its crystals is exactly cubical. It grows moist in the air, and when exposed to the fire, it bursts before it melts into many little fragments, with a crackling noise; which is called the decrepitation of sea-salt.

That neutral salt mentioned above, which is formed by combining the marine acid with a common fixed alkali, and called *sal febrifugum sylvii*, hath also this property.

Vegetable ACID. See **TARTAR** and **VINEGAR**.

Animal ACID. See **ANALYSIS of Animal Substances**.

ACIDS, in the materia medica, are medicines possessed of an acid quality; as vinegar, tartar, the juice of lemons, and other vegetable productions, spirit of vitriol, &c.

All fermenting juices, says Dr. Cheyne, as acids plainly are, must be highly injurious to weak constitutions; for by meeting with crudities in the bowels, they must raise a new conflict and collection there, and so must blow up the cavities of the human body with acrid fumes and vapours, the great and fore enemies to such bowels. But we cannot help thinking that this censure is too general; and that the vinous acids should have been excepted. It is indeed well known that, in the West Indies, where the violence of the heat renders it necessary to drink large quantities, and the want of proper liquors obliges them to drink much punch, the acid of the lemons and oranges, though in their full perfection, causes that nervous and mortal distemper, called the *dry belly ache*, as well as palsies, cramps, and convulsions. But we apprehend, that if cream of tartar

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was substituted instead of the acid of lemons and oranges, these terrible diseases would be avoided, at least as far as the acid can be supposed to cause them: and it should be remembered that the ancient Romans were so fully persuaded of the virtues of vinous acids, that the drink of their common soldiers was water mixed with vinegar, a composition which they called *Posca*. Hippocrates says, that vinegar is refreshing, for which reason it was given to reapers and those who worked in the field.

ACIDITY, that quality in bodies which renders them acid. See **ACID**.

ACIDULÆ, a name given to mineral waters which are supposed to be impregnated with some acid; an opinion which later observations have proved to be destitute of foundation. It is however still used as an appellation of cold mineral waters, to distinguish them from those that are hot. See **MEDICINAL WATERS**.

ACINI, in botany, a name applied to grapes or berries growing in clusters, to distinguish them from *bacca*, or such as grow single.

ACINIFORMIS *Tunica* in anatomy, the same with *Uvea*. See **UVEA**.

The word is compounded of *acinus*, a grape, and *forma*, shape.

ACIS, in fabulous history, the son of Faunus and Simethis, a beautiful shepherd of Sicily, who being beloved by Galatea, Polyphemus the giant was so enraged, that he dashed out his brains against a rock; after which Galatea turned him into a river, which was afterwards called by his name.

ACLONIA, in botany, a plant common in Guinea, where the inhabitants use it to cure the itch. Its leaves resemble those of the gum-tragacanth shrub, and is thought to be a species of the *colutea*.

ACKME, in a general sense, implies the height, summit, or point of any thing. The word is formed from the Greek.

ACKME, among physicians, signifies that state of a disease when it is increased to its utmost violence.

ACOEMETÆ, or **ACOEMETI**, in ecclesiastical history, an ancient order of monks among the eastern christians, who continued a perpetual course of divine service; so that their churches were never silent.

The word takes its derivation from the Greek.

There are still a kind of Acoemetæ subsisting in the Roman church, usually called the religious of the holy sacrament,

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who keep up a perpetual adoration, some or other of them praying before the host day and night.

ACOLIN, in natural history, the name of a bird common in the Spanish West Indies. It is of the partridge kind; but not larger than the starling.

ACONEROBA, in botany, a plant growing in Guinea, greatly esteemed for its virtues in the small-pox. Its leaves resemble those of our bay, and grow in pairs.

ACONITE, a genus of plants, known among us by the name of wolfsbane and monkhood.

The flower of the aconite is of the polypetalous, anomalous kind, being composed of five irregular leaves, resembling in some measure a man's head, with a helmet or hood on it. The upper petal represents the hood or helmet; the two latter ones stand for that part which covers the lower jaw; and the two wings seem adapted for covering the temples. From the center of the flower there arise two pistils, resembling feet, and received into the hollow of the upper petal, or hood; as is also another pistil, which finally becomes a fruit, composed of several membranaceous vaginæ, collected into a head, and usually containing angular and wrinkled seeds.

All the species of aconite are extremely acrimonious, and the only one ever used in medicine is called *anthora*. See **ANTHORA**.

ACONTIAS, in zoology, a species of serpent, otherwise called *jaculum*, or the dart, from its vibrating its body in the manner of a dart.

The word is derived from the Greek.

Belon met with it in the isle of Rhodes, and acquaints us that it is three palms in length, and about the thickness of a man's little finger; of a whitish ash colour, except the belly, which is entirely white, and a few little spots like eyes upon the back. The neck is black, and from thence there run two white lines along the back to the tail. The spots, which are black, are no bigger than a lentil, and encompassed with a white circle. Authors affirm that they get upon trees, from whence they dart themselves upon people as they pass along, and that their bite is mortal. They are common in Egypt, Lybia, and the islands of the Mediterranean sea. Late authors mention different kinds of these serpents; and the following descriptions have been sent to Europe from different parts of the world. Seba speaks of three kinds of darts, the first of which has a pointed tail, armed with two hard stings like

like the forked tongues of some serpents. They lurk in hollow trees, where they wait for their prey, and dart upon it with great swiftness. This kind has a long head, large eyes, and jaws well furnished with sharp teeth. The scales that cover the forehead and upper part of the body are uniform, regularly placed, and of a reddish blue colour, except a furrow in the middle, which is white; but the scales under the belly are of a pale yellow, mottled with red spots. This serpent was seen at Santa-cruz in America. The dart of Ambonyia is called by the Dutch spait-slang, or the syringe-serpent, because it raises itself as swiftly as water ejected from a syringe. It is as thick as a man's arm, six feet in length, and covered with scales disposed in the form of lozenges, tinged with a reddish brown, those on the back and sides of a sea-green, and those on the belly of a bright ash colour. The skin is smooth, and the head of the middle size: the eyes are very large and shining; the teeth small, and the tail long and pointed. The acontia, found in New Spain, is covered with yellow and reddish scales, placed in the form of lozenges, divided along the middle by streaks running from the head to the end of the tail. The head is covered with yellow scales, speckled with red, and all its joints are of an orange colour; but the scales on the belly are of a reddish yellow. *Brookes's Natural History.*

ACONTIAS, in natural history, a name applied to a kind of comet or meteor, with a roundish or oblong head, and a long slender tail resembling a dart or javelin; whence it has its name.

ACOPIS, in natural history, a precious stone transparent like glass, and spotted with a gold colour. *Pliny.*

ACOPOS, in botany, is the name of a plant mentioned by Pliny, who says it is the anagris of Dioscorides, and which Gerard considered as a species of trefoil.

ACORN, the fruit of the oak. See **OAK**.

ACORN, a genus of shell-fish, of which there are several species. The shells of these fish are of a longish shape, resembling that of an acorn, and composed of several valves from six to twelve in number; but not moveable like those of the bivalve kind, being fixed to each other by an intermediate substance.

The great furrowed ACORN-SHELL, with a large mouth, is the biggest of this kind, being about an inch and a half in height, and about an inch in diameter, where largest. It is broad at the base, and

firmly fixed to a solid substance, and nearly of the same diameter at the top as at the base, where it is wide open. The mouth is not exactly round, nor the dyes even; it is composed of twelve valves, touching at the base, but receding from each other at the top.

The fashioned ACORN-SHELL, with a large mouth, is usually found in great clusters, fixed to each other at the tops, which makes the surface of the whole appear like net-work, but there are large cavities underneath between their bodies.

The low ACORN-SHELL, with a large mouth, is three quarters of an inch high, and above half an inch in diameter. These are found in large clusters, and so closely connected, that the inner surface is more visible than the outer. The colour of this shell is a pale whitish grey, with a mixture of brown, and a small tinct of red.

The narrow-mouthed oval and greyish-red ACORN-SHELL is usually found in clusters of twenty or more together. They do not all stand upright, but are very close at the base. A single shell is about half an inch long, and a third of an inch in diameter, but somewhat narrower at the base than elsewhere.

The narrow-mouthed slender ACORN-SHELL is three quarters of an inch high, and one third of an inch in diameter, where largest, which is a little lower than the middle.

The purple narrow-mouthed and slender ACORN-SHELL is three quarters of an inch high, and a little more than a third of an inch in diameter. It is largest at the base, from whence it grows gradually smaller to the top. Each shell is composed of six ribs, which touch each other at the base, and are connected by a thin shelly matter. The ribs are flatted with deep, but not regular furrows, running longitudinally.

The greyish-white furrowed slender ACORN-SHELL is seldom more than a third of an inch long, and two thirds less in its diameter.

The slender ACORN-SHELL, with a narrow mouth, is about half an inch in height, and hardly a quarter in diameter where largest, which is towards the middle, from whence it grows gradually smaller. The colour is of a dusky brownish yellow on the ribs, and of a paler yellow between them. They are twelve in number, roundish and very narrow, standing at small distances from each other. It is brought from the East Indies, and is found sticking to the bottom of the ships that

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come from thence. *Brookes's Natural History.*

ACOUSTIC, an epithet applied to such particulars as relate to the ear, or the sense of hearing.

The word is formed from the Greek, signifying to hear.

ACOUSTIC Duct, in anatomy, a name sometimes given to the external passage of the ear. See **EAR**.

ACOUSTIC Instrument, a tube resembling in some measure a horn, the smaller end of which is placed in the ear, by which means the sound is augmented, and acts with greater force on the organ of hearing.

ACOUSTIC Medicines, such as are proper for the cure of deafness. See **DEAFNESS**.

ACOUSTIC Nerve, the same with auditorius or the auditory nerve.

ACQUIETANDIS Pleiis, in law, a writ that lies for a surety against a creditor who refuses to acquit the complainant after the debt is paid.

ACQUITTAL, in law, implies a deliverance, or the freeing a person from the suspicion of guilt.

ACQUITTAL is also used to imply a freedom from entries and molestations of a superior lord for service issuing out of lands.

ACQUITTANCE, a release or discharge in writing for a sum of money, witnessing that the party has paid the said sum. No man is obliged to pay a sum of money if the demandant refuses to give an acquittance or receipt which is a full discharge, and bars all actions, &c. An acquittance given by a servant for a sum of money received for the use of his master, shall be a good discharge for that sum, provided the servant used to receive his master's rents, debts, &c.

ACRASIA, among physicians, implies the predominancy of one quality above another, either with regard to artificial mixtures, or the humours of the human body.

ACRE, a measure of land containing one hundred and sixty square poles or perches. This word is formed from the Saxon *acer*, or the German *acker*, a field.

The word acre did not originally signify a determined quantity of land, but any open ground, especially a wide campaign: and, in this antique sense, it seems to be preserved in the names of places, as Castle-acre, West-acre, Long-acre, &c. When the word was applied to the measure of ground, the quantity was various till the thirty third year of Edward I. when it was determined by act of parliament.

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ACRE-TAX, a tax levied upon lands at a certain rate, by the acre, otherwise called acre-shot.

ACRID, an epithet applied to things of a sharp, pungent, and disagreeable taste.

The word takes its origin from the Greek.

ACRIMONY, that quality in things which renders them acrid.

ACRIMONY of the Humours, a malignant quality which the fluids of the human body often acquire from a great variety of causes; particularly from a stagnation, or too violent a motion.

ACROMION, in anatomy, is a name given to the epiphise or upper part of the scapula, or shoulder-blade, produced by an eminence called epinus.

The word is a compound from the Greek.

ACRONYCAL, in astronomy, an appellation given to the rising of a star above the horizon at sun-set; or its setting at sun-rising; for, in either case, the star is said to rise and set acronycal.

The word is formed from the Greek.

ACROSPIRED, in malt-making, is a term applied to such grains of the barley as shoot or sprout out both at the blade and root end. See the article **MALT**.

ACROSTIC, in poetry, a poetical composition disposed in such a manner, that the initial letters of the verses, form the name of some person, kingdom, place, motto, &c.

The acrostic is considered by the critics as a species of false wit, and is therefore very little regarded by the moderns. It is seldom attempted but by mere dabblers in poetry.

ACROSTIC, is also a name given to two epigrams in the Anthologia, one of which is in honour of Bacchus, and the other of Apollo.

ACROSTICUM, in botany, a name given by Linnæus to the *ruta muraria* of Tournefort, a distinct species of mosses.

ACROTHERIA, in architecture, small pedestals upon which globes, vases, or statues, are placed at the end or center of pediments, or frontispieces. The height of the acroteria at the extremities should be only one half of that of the tympanum; whereas that in the center ought to be one eighth more.

ACROTHERIA also signify the figures placed as ornaments or crownings on the tops of churches: and sometimes those sharp pinnacles, standing in rows about flat buildings, with rails and balusters are called acroteria.

ACT,

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ACT, in its general sense, implies whatever is performed either by the body or mind.

ACT, in dramatic poetry, signifies a certain division, or part of a play or dramatic performance, designed to give some respite both to the actors and spectators.

The Romans were the first that divided their theatrical pieces into acts; for no such divisions appear in the works of the first dramatic poets. Their pieces indeed consisted of several parts or divisions, which they call *protasis*, *epitasis*, *catastasis*, and *catastrophe*; but these divisions were not marked by any real interruptions on the theatre. Nor does Aristotle mention any thing of acts in his *Art of Poetry*. In the time of Horace however, all regular and finished pieces were divided into five acts.

The first act, say some critics, besides introducing upon the stage, the principal characters of the play, should propose the argument or subject of the piece; the second should exhibit this to the audience, by carrying the fable into execution: the third should raise obstacles and difficulties: the fourth remove these, or raise new ones in the attempt: and the fifth conclude the piece, by introducing some accident that may unravel the whole affair.

The abbe Vauvray is of opinion, that some pieces may, with propriety, consist only of three acts, and others even of more than five; because it is no ways essential that a tragedy should consist of fifteen or sixteen hundred verses. The division into five acts is then an arbitrary rule, which may be violated without scruple. M. Voltaire has already got the better of that ancient prejudice in his *Death of Caesar*, which, though an excellent tragedy, consists of no more than three acts; and we have, in the English language, some of the same kind no way inferior to M. Voltaire's.

Acts are divided into scenes; and Vossius remarks, that among the ancients, an act never contained more than seven scenes; but with us there is no fixed rule as to their number.

ACTS of the Apostles, one of the sacred books of the New Testament, containing the history of the infant church, during the space of twenty-nine or thirty years, from the ascension of our Lord to the year of Christ 63.

It was written by St. Luke, and addressed to Theophilus, the person to whom that evangelist had before dedicated his Gospel. We here find the accomplishment of several of the promises made by our Saviour, his ascension, the descent of the

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Holy Ghost, the first preaching of the apostles, and the miracles whereby their doctrines were confirmed; an admirable picture of the manners of the primitive Christians, and every thing that passed in the church till the dispersion of the apostles, who separated themselves in order to propagate the Gospel throughout the world. The style of this work which was originally composed in Greek, is much purer than that of the other canonical writers; and it is observable, that St. Luke, who was much better acquainted with the Greek than with the Hebrew language, always in his quotations from the Old Testament, makes use of the Septuagint version. The council of Laodicea places the Acts of the Apostles among the canonical books, and all the churches have acknowledged it as such.

ACT, in the universities, signifies a thesis maintained in public by a candidate for a degree, or to shew the capacity and proficiency of a student.

The candidates for a degree of bachelor and master of arts are to hold philosophical acts; and those for bachelor of divinity, theological acts, &c.

At Oxford, the time when masters or doctors complete their degrees is also called the *act*, which is held with great solemnity. At Cambridge they call it the *commencement*.

ACT of Faith, in the Romish church, a day appointed by the inquisition for the punishment of heretics, and the absolution of the innocent. The criminals are first led to church, where their sentence, either of condemnation or absolution, is pronounced, and the criminals surrendered up to the secular power. This is the last scene of a court which is at once a dishonour to religion, and a disgrace to humanity.

ACT, in philosophy, an effective application of some power or faculty. In this sense act stands opposed to power, or the capacity of acting, not the exertion of that capacity. The word act is indeed properly and primarily only applicable where the power might exist, without being exerted: but the schoolmen extend it further, defining it by the presence of any power or perfection, even though it could not be absent; in which sense God himself is said to be a most pure act, because his perfections are always and necessarily present.

ACT, in logic, is particularly understood of an operation of the human mind. Thus to discern and examine are acts of the understanding; to judge and affirm are acts of the will.

There

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There are voluntary and spontaneous acts; the former are produced by the operation of the soul: the latter without its privity and participation.

ACT of Parliament is a positive law, consisting of two parts, the words of the act, and its true sense and meaning; which being joined, make the law. The words of *Acts of Parliament* should be taken in a lawful sense. Cases of the same nature are within the intention, though without the letter of the act; and some acts extend by equity to things not mentioned therein.

ACTION Years, in chronology, a series of years reckoned from the era of the battle of Actium, otherwise called the era of Augustus.

ACTION, in its general sense, implies nearly the same thing with act. See **ACT**.

Grammarians, however, observe some distinction between *action* and *act*; the former being generally applied to the common or ordinary transactions: whereas the latter is used to express those which are remarkable. Thus we say, it is a good *action* to comfort the distressed; it is a generous *act* to deprive ourselves of what is necessary for their sake. The wise man proposes to himself an honest end in all his *actions*. A prince ought to mark every day of his life with some *act* of greatness.

ACTION, in mechanics, the effort which a body or power makes against another body or power, or the effect itself of that effort.

It being necessary in works of this kind to have a particular regard to the common language of mechanics and philosophers, we have given this double definition: but the proper signification of the term is the motion which a body really produces, or tends to produce in another; that is, such is the motion it would have produced had nothing hindered its effect. All power is nothing more than a body actually in motion, or which tends to move itself: that is, a body which would move itself if nothing opposed it. The action therefore of a body is rendered evident to us by its motion only, and consequently we must not fix any other idea to the word action, than that of actual motion, or a simple tendency to motion. The famous question relating to *vis viva*, and *vis mortua*, owes in all probability, its existence to an inadequate idea of the word action; for had Leibnitz and his followers observed, that the only precise and distinct idea we can give to the word force or action, reduces it to its effect, that is to the motion it actually produces or tends to produce, they would ne-

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ver have made that curious distinction. See **FORCE**.

M. de Maupertuis, in the memoirs of the Parisian Academy of Sciences for 1744, and in those of Berlin for 1746, lays it down as a general law, "that in the changes made in the state of a body, the quantity of action necessary to produce such a change is the least possible."

This principle he applies to the investigation of the laws of refraction, of equilibrium, &c. and even to the ways of acting, employed by the Supreme Being. In this manner M. de Maupertuis attempts to connect the metaphysics of final causes with the fundamental truths of mechanics, to shew the dependance of the collision of both elastic and hard bodies upon one and the same law, which before had always been referred to separate laws; and to reduce the laws of motion, and those of equilibrium, to one and the same principle.

It is remarkable that of the many philosophers who have treated on the subject of refraction, none should fall upon so simple a manner of reconciling metaphysics with mechanics; since no more is necessary than the making a small alteration in the calculus founded upon M. de Fermat's principle. In reality, according to that principle, the time, that is, the space divided by the velocity, should be a minimum: so, calling the space run through in the first medium S, with the velocity V, and the space run through in the second medium s, with the velocity v, we shall

have $\frac{S}{V} + \frac{s}{v} = \text{a minimum}$; that is,

$\frac{\dot{S}}{V} + \frac{\dot{s}}{v} = 0$. Now it is easy to per-

ceive, that the sines of incidence and refraction are to each other as $\dot{S}$ to $-\dot{s}$; whence it follows, that those sines are in the direct ratio of the velocities V, v, which is agreeable to M. de Fermat's rule. But in order to have those sines to be in the inverse ratio of the velocities, it is only supposing $\dot{V}S + \dot{v}s = 0$, which gives $S \times V + s \times v = \text{a minimum}$. See **MINIMUM**.

In the memoirs of the academy of Berlin, may be seen the other applications M. de Maupertuis has made of this principle. And we will add, that whatever may be determined with regard to the metaphysical basis of this principle, and even to the conception he has annexed to the quantity of action, it will hold good, that the product of the space by the velocity is a minimum in the most general laws of nature.

ACTION,

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ACTION, in poetry, the subject or fable of the poem, or play.

Critics generally distinguish two kinds, the *principal*, and the *incidental*. The principal action is what is generally called the fable, and the incidental an episode. See the article **EPISODE**.

As poems are divided into epic and dramatic, so each of these has its particular action. That of the dramatic poem ought to be one, intricate, unravelled, and complete: but at the same time much shorter than that of an epic poem.

The action of an epic poem ought to be great, one, entire, marvellous, and of a competent duration.

First, it ought to be great, that is, noble and interesting; a common ordinary adventure not furnishing the instructions intended to be conveyed by an epic poem. The action must be important and heroic. Thus, in the *Æneid*, a hero escaped from the ruins of his country, wanders a long time with the remainder of his fellow-citizens, who had chose him for their leader, and, in spite of Juno's anger, who pursues him without intermission, he arrives in a country which the Fates had promised him; defeats very formidable enemies; and, after surmounting a thousand difficulties, with a sagacity equal to his valour, he there lays the foundation of a powerful empire.

There are two methods of rendering the epic action interesting: the first, by the dignity and importance of the personages; this is the artifice of Homer, who has nothing else important in his models; every other particular might happen to common persons. The second is the importance of the action in itself, as the establishment or abolition of some religion or state; such is the subject chosen by Virgil, and in this he doubtless excels Homer. The action of the *Henriade*, by Voltaire, re-unities, in a pleasing manner, this double advantage. But Milton, in both particulars, excels them all.

F. le Bossu adds a third method for rendering the action interesting, viz. the giving the readers an higher idea of the personages of the poem than what they commonly entertain of mankind; and by comparing the heroes of the poem with the present race of mortals.

The action ought to be one, that is, the poet ought to confine himself to one single illustrious enterprize, executed by his hero, and not take the whole history of his life. The *Iliad* is no more than the history of the anger of Achilles, and the *Odyssey* that of Ulysses's return to Ithaca. Homer

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would neither describe the entire life of the latter, nor the whole of the Trojan war. On the contrary, Statius, in his *Achilleid*, as well as Lucan in his *Pharsalia*, has heap'd together too many single events, in order to give their works the name of epic poems. They may indeed be called heroic, because they treat of heroes; but we must be careful not to confound the unity of the hero with the unity of the action. Epic poetry is not the praise of an hero, whom we propose as a model, but the recital of some great and illustrious action, which is given as an example.

In Poetry as in painting, the unity of the principal action does not hinder us from introducing several particular incidents, and those incidents are called episodes. The design is formed from the beginning of the poem; the hero of it attains his end by surmounting every obstacle; and it is the recitals of those oppositions which make the episodes. However, all those episodes depend upon the principal action, and are so connected with it, and so united with each other, that we never lose sight either of the hero or the action which the poet proposes to celebrate.

The action of an epic poem ought to be marvellous; that is, full of bold actions, which have however an air of probability. Such is the intervention of heathen deities in the poems of the ancients, and that of the passions personified in those of the moderns. But tho' the poet may sometimes go beyond nature, he ought never to shock reason. An action may be either sagaciously or ridiculously marvellous.

With regard to the duration of the action of an epic poem, Aristotle observes, that it is less confined than that of tragedy. The latter ought to be included in the space of one day, or, as they say, between two suns; but an epic poem is not confined in respect to time. In fact, tragedy is replete with violent passion, and nothing that is violent can be of long duration; but virtues and habitudes, which are not acquired instantaneously, are proper for an epic poem, and consequently its action ought to have a greater extent. F. le Bossu lays it down as a rule, that the more violent the passions of the principal persons are, the less time the action ought to last; and consequently that the action of the *Iliad*, the soul whereof is Achilles's anger, lasts but seven and forty days; whereas that of the *Odyssey*, where prudence is the prevailing quality, lasts eight years and a half; and that of the *Æneid*, where the principal personage is a pious and humane hero, nearly seven years. But the rule of the

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above author is not incontestable, nor are his sentiments, either with regard to the duration of the *Odyssy* or that of the *Iliad*, exact; for though the epoeie may include in its narration the actions of several years, yet the critics are generally of opinion, that the time of the principal action, from the place where the poet begins his narration, should not be longer than one year, as the time of the action of a tragedy ought to be at most but one day. Aristotle and Horace, however, say nothing of this matter: but the examples of Homer and Virgil prove it. The duration of the *Iliad* is but forty-seven days: the *Odyssy* does not commence till the departure of Ulysses from the island of Ogygia: and the *Aeneid* at the tempest which threw Aeneas upon the coast of Carthage. Now, reckoning from these two epochs, the action of the *Odyssy* is but of two months continuance, and that of the *Aeneid* one year. It is true that Ulysses, while with Alcinoüs, and Aeneas, while he stays with Dido, relate their past adventures; but these recitals are introduced merely as such, in the duration of the principal action, and the course of years which were taken up by those events make no part of the duration of the poem; as in tragedy, the events related in the protasis, and which only tend to explain the dramatic action, make no part of its duration; therefore the error of F. le Bossu is sufficiently evident.

ACTIONS, in ethics, the voluntary actions of a man, considered in respect to the imputation of their effects in common life.

By voluntary actions we mean those which depend upon the human will, considered as a free agent, without whose determination, caused by some of its immediate acts, and preceded by the knowledge of the understanding, they cannot be performed, and consequently the existence or non-existence of them is in the power of every person.

Human actions, include, in their essence, two particulars; their matter, and their form. The matter comprehends several particulars, as,

1. The physical motion of one of the natural faculties; for instance, of the motive faculty of the sensitive appetite, of the exterior and interior senses, &c. We might also place in this class the acts of the will themselves, considered simply in their natural existence, so far as they are the effects flowing from a physical faculty.

2. The defect of some physical motion it is capable of producing; for we are equally obnoxious and punishable for the

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finis of omission as for those of commission.

3. It is not only our proper motions and habitudes, or the absence of either in our own person, that can constitute the matter of our moral actions; but also the motions, the habits, and their absence, which we find in others, provided the whole could and might be directed by our own will.

4. It is not the action of beasts, or the operations of vegetables, and inanimated bodies in general, that can furnish the matter of any moral action, since these species of beings are susceptible of being directed by our will; and hence we see the reason why the owner of an ox that pushes with his horns, was, by the Levitical law, obliged to make good the damage done by that beast, provided the owner was previously apprised of the vicious nature of that creature.

5. The actions of another, of which we are the passive subject, may be the cause of a moral action, at least so far as we have given room to commit such action. Thus a woman, who has been violated, is considered as in some degree culpable, if she imprudently exposed herself by going to places where she had no real business, and by that means put herself into the power of the ravisher.

The essence of moral actions consists in their imputability, if we may be allowed to apply that term to the quality whereby the effects of voluntary actions may be imputed to the agent as their author; and hence the agent is called the moral cause.

ACTION, in the military art, an engagement between two armies, or different bodies of troops. It is also used to signify some memorable act performed by some officer or commander.

ACTION, in law, the right of demanding, in a legal manner, what is any man's due; or the process brought for recovering the same.

ACTIONS are either criminal or civil.

Criminal ACTIONS are to have judgment of death, as murder, robbery, &c. or only judgment for damage to the injured, fine to the king, and imprisonment. Under the head of criminal actions may also be ranked penal actions, which lie for some penalty or punishment, on the party sued, whether it be corporal or pecuniary. Also actions upon the statute, brought on breach of any statute, or act of parliament, by which an action is given that did not lie before; as where a person commits perjury to the prejudice of another, the injured shall have an action upon the statute.

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And lastly, popular actions, so called, because any person may bring them on behalf of himself and the crown, by information, &c. for the breach of some penal statute.

Civil ACTIONS are divided into real, personal, and mixt. *Real ACTION* is that whereby a man claims a title, lands, tenements, &c. in fee, or for life; and this action is either possessory, or ancestral; possessory, where the lands are a person's own possession or seisin; ancestral, when they were in the possession or seisin of his ancestors. *Personal ACTION*, is that brought by one man against another, upon any contract for money or goods, or on account of trespass, or other offence committed; and thereby the debt, goods, chattels, &c. claimed. *Mixt ACTION*, one lying as well for the thing demanded as against the person who has it; and on which the thing is recovered with damages for the wrong sustained; such is an action of waste sued against a tenant for life, the place wasted being recoverable, with treble damages, for the wrong done. All actions seem to be temporary. A real action may be prescribed against in five years after a fine levied, or recovery suffered. Writs of formerton for any title to lands in being, must be sued out within twenty years. Actions of debt, account, detinue, trover, and trespass, are to be brought within six years; of assault and battery within four years; and of slander within two years, after cause of action, and not afterwards. However, it ought to be observed, that the right of action in these cases is saved to infants, feme coverts, and persons in prison, or beyond sea, &c. so as they commence their suits within the time limited after their imperfections are removed. Actions may be brought against all persons whatever; but those who are attainted of high treason or felony, or outlawed or excommunicated person, &c. cannot bring any action till pardoned, absolved, &c. A feme covert must sue with her husband, and infants by their guardians. *ACTION upon the Case*, a general action which lies for the redress of wrongs and injuries done without force, and which, by law, are not provided against. This at present is the most frequent of all actions, being brought in all cases, where no certain form has been established; and the reason why it is called an action upon the case, is because the whole cause or case is set forth in the writ. It may be brought as well where there is another action, as where no other lies. *ACTION upon the Case for Words*, is brought where a person is injured in his reputation; and

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for words which affect the life, office, trade, &c. or tend to the loss of preferment in marriage, or otherwise; or to the disinheri- tance or other damage of a person. *ACTION of a writ*, is when a person pleads some matter by which is shewn, that the plaintiff had no cause to have the writ brought, though, perhaps, he may have another writ for the same matter. It is hence called a plea to the action of the writ, in contradistinction from a plea to the action.

ACTION, among physicians, is applied to the functions of the human body, whether vital, animal, or natural. Vital actions are those without which life could not be maintained. Such is the motion of the heart and lungs. Under animal actions are comprehended the senses, imagination, judgment, and voluntary motions, without which we could not live comfortably. Lastly, natural actions, which, tho' not so immediately necessary to life but that we may live some time at least without them, yet are absolutely necessary to our well-being; such is digestion.

ACTION, in commerce, is a term used abroad for a certain part or share of a publick company's capital stock. Thus, if a company has 400,000 livres capital stock, this may be divided into 400 actions, each consisting of 1000 livres. Hence a man is said to have two, four, &c. actions, according as he has the property of two, four, &c. thousand livres, capital-stock. The transferring of actions abroad is performed much in the same manner as stocks are with us. See the article *STOCKS*.

ACTION, in oratory, the expression of the countenance, voice, gesture, &c. and which ought to be accommodated to the subject. Action, says Cicero, is the eloquence of the body; it has two parts, the voice and the gesture; the one strikes the ears, and the other the eyes: the two senses, says Quintilian, whereby we convey our sentiments and passions into the souls of the hearers. Each passion has a tone of voice, and an air and a gesture peculiar and proper to it. The ancients used the word pronunciation in the same sense; Demosthenes considered this as the second requisite in eloquence, laying it down as an acknowledged truth, that a middling discourse delivered with all the force and graces of action, will have a greater effect on the audience than the most eloquent discourse destitute of that powerful charm.

ACTION, in horsemanship, implies the motion of the various parts of a horse in doing his paces, &c.

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ACTION of the Mouth, in horsemanship, signifies the motion of a horse's mouth in champing on his bit, whereby he throws out a great deal of foam, which keeps his mouth always fresh. It is a mark of fire and vigour.

ACTION, in painting and sculpture, the attitude or position of the several parts of the face, body, and limbs of such figures as are represented, and whereby they seem to be really actuated by passions. Thus we say, the action of such a figure finely expresses the passions with which it is agitated: we also use the same expression with regard to animals.

ACTIVE, an epithet applied to that body or power which communicates motion to another: and, in this acceptation, the term *active* is opposed to *passive*.

Sir Isaac Newton justly observes that the vis inertiz, &c. of all bodies must have a tendency to diminish the quantity of motion in the universe; and consequently that there is a necessity for certain active principles to recruit it: among which he places the causes of gravity and fermentation. He adds, that there is very little motion in the universe that does not flow from these principles: and, as the cause of gravity always subsists without being in the least diminished by a continual exertion of its force, it becomes a perpetual source of action.

ACTIVE Principles, in chemistry, are those supposed to act of themselves, without any necessity for the action of others.

The chemists, in general, distinguish the principles of bodies into *active* and *passive*. The former are spirit, oil, and salt; and those of the latter, water and earth. But we cannot admit of this distinction; because as those principles are merely relative, they may become active in some respects, and passive in others. Nor does there appear the least reason for placing water in the class of passive principles. Mr. Homberg, and several other chemists, make only one active principle, namely, sulphur or fire, which they assert to be the source of every action in the universe. See the article FIRE.

ACTIVE, in medicine, is applied to such remedies as have a quick action, or exert their force suddenly and with vigour.

ACTIVE, in grammar, is applied to such words as express an action; and is therefore opposed to passive. The active performs the action, as the passive receives it. The fire *burns*, and the wood is *burned*. *Burns* is therefore an *active*, and *burned* a *passive* term.

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Verbs are divided into active and passive: the former implies that the subject of the verb performs the action, as, *I love*; and the latter that the subject receives the action, as, *I am loved*.

We say that verbs have an active and a passive voice; that is, a succession of terminations which express an active sense, and another series of terminations that imply a passive sense. This is undoubtedly just with regard to the Greek and Latin languages; but the English verbs have only an active voice, and it is by means of a periphrasis, and not by the assistance of a particular termination, that we express a passive sense.

ACTIVITY, the power of acting, or the active faculty.

ACTOR, in a general sense, every person that acts.

ACTOR, with regard to the Theatre, a person who plays a part, or represents some character, in a dramatic performance. The women are called actresses, but comprehended under the general name of actors. The drama consisted originally of only a simple chorus, who sung hymns in honour of Bacchus; so that the primitive actors were only singers and musicians.

Thespis was the first that, in order to ease this unformed chorus, introduced a declaimer, who repeated some heroic or comic adventure. Eschylus, finding a single person tiresome, attempted to introduce a second, and changed the ancient recitals into dialogues. Before his time, the actors daubed themselves with dregs of wine, and, being drawn upon a tumbrel, amused the spectators. Eschylus was the first projector of theatres. He also dressed his actors in a more majestic manner, and introduced the cothurnus or buskin. Sophocles added a third, in order to represent the various incidents in a more natural manner: and here the Greeks stopped; at least we do not find in any of their tragedies above three persons in the same scene; perhaps they looked upon it as a rule of the dramatic poem never to admit more than three speakers at a time on the stage; a rule which Horace has expressed in the following verse:

Nec quarta loqui persona laboret.

This however did not prevent their increasing the number of actors in comedy. Before the opening of a play, they named their actors in full theatre, together with the parts they were to perform. The moderns have sometimes brought a greater number of actors upon the stage, in order to increase the business by the variety of persons;

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persons; but this has often occasioned a confusion in the conduct of the piece. The ancient actors were masked, and obliged to raise their voice extremely, in order to make themselves heard by the innumerable crowd of people who filled the amphitheatres: they were accompanied with a player on the flute, who played a prelude, gave them the tone, and played while they declaimed.

Actors were highly honoured at Athens, and despised at Rome, where they were not only denied all rank among the citizens, but even when any citizen appeared upon the stage, he was expelled his tribe, and deprived of the right of suffrage by the censors. Cicero, indeed, esteems the talent of Roscius, but he values his virtues still more; virtues which distinguished him so remarkably above all others of his profession, that they seemed to have excluded him from the theatre. The French have, in this respect, adopted the ideas of the Romans; and the English those of the Greeks.

ACTRESS, a woman who performs, represents, or acts some character on the stage.

ACTUAL, an epithet applied to such things as absolutely subsist. Philosophers use the terms actual heat, actual cold, &c. in opposition to virtual or potential; and divines, that of actual grace in opposition to habitual.

ACTUAL Sin, what is committed by the person himself, in opposition to original sin, or that he contracted from being a child of Adam.

ACTUARY, or **ACTUARIUS**, a clerk whose business it is to register the acts and constitutions of the convocation.

Among the ancient Romans the actuary was a notary or clerk, who kept an account of the provisions and corn delivered out to each soldier.

ACULEI, in natural history, the spines or prickles found upon several objects both in the animal and vegetable kingdom.

ACULER, in the manege, is said of a horse when in working upon voltes, he does not go far enough forward at every motion, by which means his shoulders take up too little ground, and his croupe comes too near the center of the volt.

ACUS, in natural history, the name of two distinct genuses of fishes, one called, in English, the needle or tobacco-pipe fish, and the other the gar-fish. The former is about a foot and a half in length, but not thicker than a man's finger. It has two very small fins near the gills, and another on the back. The latter, often called the

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acus of Oppian, is also long and slender, and the back of a bluish green colour. The under mandible is longer than the upper, and both furnished with sharp teeth.

ACUTE, an epithet applied to such things as terminate in a sharp point or edge; in which sense it stands opposed to obtuse.

The word is derived from the Greek.

ACUTE Angle, in geometry, that which is less than a right angle. See **ANGLE**.

ACUTE-ANGLED Triangle, a triangle whose three angles are all acute.

ACUTE-ANGLED Cone, according to the ancients, a right cone, whose axis makes an acute angle with its side.

ACUTE, in music, is applied to a sound or tone that is sharp or high, compared to some other tone. In this sense, *acute* stands opposed to *grave*.

ACUTE Accent. See **ACCENT**.

ACUTE Disease, among physicians, that which moves with velocity to a crisis, and is attended with danger; in this sense it is opposed to *chronical*.

ADAGE, a proverb, or popular sentence, containing some remarkable observation.

The word, according to Scaliger, is compounded of *ad*, and *agor*.

ADAGIO, in music, the first and slowest of the four principal degrees of time established in the Italian music. When repeated, it signifies still slower time. The word is an Italian adverb, and signifies slowly, leisurely, &c.

ADAMANT, a name given by some to the diamond. See **DIAMOND**.

ADAMI Pomum, Adam's apple; in anatomy, a protuberance in the fore part of the throat.

ADAMICA Terra, in natural history, a salt, glutinous, fat, and mucilaginous substance, resembling a jelly found at the bottom of the sea.

ADAMITES, in ecclesiastical history, the name of a sect of ancient heretics, supposed to have been a branch of the Basilidians and Carpocratians. Epiphanius tells us, that they were called Adamites from their pretending to be re-established in the state of innocence, and to be such as Adam was at the moment of his creation, whence they ought to imitate him in his nakedness. They detested marriage, maintaining that the conjugal union would never have taken place upon earth had sin been unknown; and that the privilege of enjoying women, in common, was one of the rights which flowed from their establishment in original purity.

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This sect did not last long; but it was revived in the twelfth century by one Tandamus, who propagated his errors at Antwerp, in the reign of the emperor Henry V. He maintained that there ought to be no distinction between priests and laymen; and that fornication and adultery were meritorious actions.

Tandamus had a great number of followers, and was constantly attended by three thousand of these profligates in arms. His sect did not however continue long after his death: but another appeared under the name of Turlupins, in Savoy and Dauphiny, where they committed the most brutal actions in open day. About the beginning of the fifteenth century, one Picard, a native of Flanders, spread these errors in Germany and Bohemia. Picard pretended he was sent into the world, as a new Adam, to re-establish the law of nature; and which, according to him, consisted in exposing every part of the body, and having all the women in common. This sect found also some partizans in Poland, Holland, and England.

ADAPTERS, or **ADOPTERS**, among rhymists, vessels in the form of hollow globes, with two mouths or apertures diametrically opposite to each other; one of which admits the neck of the retort; and the other is received either by the mouth of another adapter, or into the mouth of the receiver.

ADAR, the name of the twelfth month of the ecclesiastical, and the sixth of the civil year among the Hebrews. It consists of twenty-nine days, and answers to the latter end of our February and the beginning of March. The Jews fast on the seventh of this month, on account of the death of Moses; on the thirteenth in imitation of the Jews of Susa, who then fasted to avert the evils with which they were threatened by Haman; on the fourteenth they celebrate the feast of Purim, in commemoration of their deliverance from the intended cruelty of Haman.

As the lunar year, which the Jews followed in their calculation, is shorter than the solar by about eleven days, which at the end of three years make a month, they then intercalate a thirteenth month, which they call *Veader*, or the second Adar.

ADATIS, in commerce, a name given to the muslins brought from the East Indies. The finest are those of Bengal, and run about three quarters wide.

ADDER, the viper. See **VIPER**.

ADDER-STUNG; cattle are said to be adder-stung when their udders are bit by the adder, or hedge-hog. The general

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method of curing this is by an ointment composed of dragon's blood, barley-meal, and the whites of eggs.

ADDER'S TONGUE, in botany, the English name of the ophioglossum.

ADDICE, or **ADZE**, a kind of crooked ax, much used by shipwrights, coopers, &c.

* **ADDISON**, (Joseph) was one of the brightest geniuses this country has produced. He was the son of dean Addison, and was born at Milston, near Ambresbury, in Wiltshire, on the 11th of May, 1672; and baptized the same day. Having received the first principles of his education, he was removed to the Charterhouse, in London, where he contracted a friendship for Mr. Richard Steele, afterwards Sir Richard, which lasted during their lives. At fifteen he was entered in Queen's College, Oxford, where he soon became a master of the classics. He was twenty years of age before he published any thing in English, and then his Translation of Virgil's fourth Georgic, his verses to Mr. Dryden, several other poems, and his Discourse on the Georgics, procured him the applause of that excellent poet; and having dedicated a poem on one of king William's campaigns to the lord keeper Somers, that judicious statesman not only seconded his desire to travel, but procured for him from the crown an annual pension of 300*l*. by which means he was enabled to make the tour of Italy; and at his return he published an account of his travels, and dedicated them to his patron. At the death of king William his pension was stopped, and he remained a considerable time unemployed. But in the year 1704, the lord treasurer Godolphin happened to complain to lord Halifax, that the duke of Marlborough's victory at Blenheim had not been celebrated in verse in the manner it deserved; and intimated, that he would take it kindly, if his lordship, who was the known patron of the poets, would name a gentleman capable of doing justice to so elevated a subject; lord Halifax replied with some quickness, that he was well acquainted with such a person, but that he would not name him; adding, that he had long seen with indignation, men of no merit, maintained in pomp and luxury at the public expence, while persons of too much modesty, with great abilities, languished in obscurity. The treasurer said he would pawn his honour, whoever his lordship should name, might venture upon this theme without fear of losing his time. Upon this lord Halifax named Mr. Addison, but insisted that

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that the treasurer himself should send to him, which he promised. Accordingly he prevailed upon Mr. Boyle, chancellor of the exchequer, to go to Mr. Addison in his name, and communicate to him the business; which he accordingly did, in so obliging a manner, that he readily entered upon the task. The lord-treasurer saw a part of the poem before it was finished, and was so pleased with it, that he immediately made him a commissioner of appeals. Two years after he was appointed under-secretary of state: after this he was made secretary to the lord-lieutenant of Ireland, and keeper of the records in that kingdom. He assisted Sir Richard Steele in writing the Tatler, till its conclusion in 1711. And Sir Richard having soon after formed the plan of the Spectator, consulted Mr. Addison about it, who furnished the greatest part of those papers which are in highest esteem, which he marked with some letter in the word CLIO. In 1713 his Cato appeared on the stage, and with the applause of every party, ran thirty-five nights. He afterwards had a share in the Guardian, &c. Upon the death of the queen the lords justices appointed him their secretary. After this, Mr. Addison was made one of the lords of trade. In 1716 he married the countess of Warwick, and was the next year appointed by king George I. one of his principal secretaries of state: but his health, which had been before impaired by an asthmatic disorder, suffered greatly by his advancement. He therefore resigned his office, and applied himself to the writing A Treatise on the Christian Religion; but a severe relapse put a period to his life on the 17th of June, 1719, in the fifty-fourth year of his age.

ADDITAMENT. something added to another. Thus physicians call the ingredients added to a medicine already compounded, additaments.

ADDITION, in a general sense, the uniting several things together, or adding one thing to another.

ADDITION, in arithmetic, is the first of the four fundamental rules or operations of that science, and consists in finding a certain number equal to two or more numbers taken together, or in finding the most simple expression of a number according to the established notation; the number so found being called their sum.

The algebraic sign or character of addition is +, commonly pronounced *plus*. Thus 4 + 5 signifies the sum or aggregate

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of 4 and 5, in reading which we say, four *plus* five.

The addition of single numbers, or those consisting of one digit only, is very easy. For example, it is evident that 5 and 8, or 5 + 8, make 13.

In compound numbers, addition is performed by writing down the given numbers in vertical columns, placing units under units, tens under tens, hundreds under hundreds, &c. and then taking separately the sum of all the columns. This will be rendered very plain, by an example. Suppose it were required to add together the numbers 1773 and 123, set them down in the proper ranks under each other, in the following manner:

$$\begin{array}{r} 1773 \\ 123 \\ \hline 1896 \text{ sum, or total.} \end{array}$$

Begin by adding the units, saying, 3 and 3 make 6, which write down under the column of units; then proceeding to the column of tens, say 2 and 7 make 9, (tens) which are equivalent to tens, set down therefore 9 under the column of tens; lastly, proceeding to the column of thousands, where there is but one digit or figure, write it under that column, and the sum or total of these numbers collected, will be 1896, as above.

So that, to perform this operation, all the units of the first column must be collected or added; and if the sum of the units does not exceed 9, such sum must be written under the column of units; but if it be greater than 9, the number of tens must be kept in memory to be carried to the next column of tens; and in case there be any units over and above the tens, they must be set under the column of units; but if there be no overplus, then 0 must be put there, to signify that there are no units, and the tens only are to be carried to the next column of tens, where the same method is to be strictly observed as in the foregoing; because 10 units make 1 ten, 10 tens 1 hundred, 10 hundreds 1 thousand, &c.

Thus to add together the numbers 76948 + 24630 + 1462 + 536; place them as in the former example:

$$\begin{array}{r} 76948 \\ 24630 \\ 1462 \\ 536 \\ \hline 803576 \text{ sum.} \end{array}$$

And

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And, having drawn a line under them, say 6 and 2 make 8, and 8 make 16: where there are 1 ten and 6 units; write therefore 6 under the column of units, and keep in mind 1 (ten) to be carried to the column of tens, where say 1 (ten) and 3 make 4, and 6 make 10, and 3 make 13, and 4 make 17 (tens), equal to 1 hundred and 7 tens; wherefore, under the column of tens, write 7, and carry 1 hundred to the column of hundreds, where the operation is to be pursued, saying 1 (hundred carried) and 5 make 6, and 4 make 10, and 6 make 16 and 9 make 25 (hundreds), equal to 2 thousands and 5 hundreds; wherefore place 5 under the column of hundreds, and carry 2 (thousands) to that of thousands, where say 2 (thousands) and 1 make 3, and 4 make 7, and 6 make 13, equal to 13 thousand; write therefore 3 under the column of thousands, and carry 1 to the column of tens of thousands, where say 1 (ten thousand) and 2 make 3, and 7 make 10 (tens of thousands, equal to 1 hundred thousand); you must therefore write 0 under the column of tens of thousands, to signify that there are none of that denomination, and place before it 1, which finishes the operation, and makes the sum total 103576.

ADDITION of different Denominations. When the numbers are of different denominations, or when they contain, for example, pounds, shillings, and pence; or yards, feet and inches, care must be taken to place pence under pence, shillings under shillings, pounds under pounds, &c. and work as before. Suppose for instance, the following numbers were to be added, 240*l.* 14*s.* 6*d.* + 86*l.* 10*s.* 4*d.* + 4*l.* 9*s.* 3*d.* dispose of them in the following manner;

£.	s.	d.
240	14	6
86	10	4
4	9	3
331	14	1 sum

And, having drawn a line under, begin with the pence, saying 3 and 4 make 7, and 6 make 13 pence, equal to 1 shilling and 1 penny; write therefore 1 penny under the column of pence, and carry 1 shilling to the column of shillings, and say 1 and 9 make 10, and 4 make 14 shillings, equal to 4 shillings, and 1 to be carried to the tens of shillings, where say 1 and 1 make 2, and 1 make 3 (tens of shillings), which exceeding 1 pound by 1 ten shillings, set down 1 in the column

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of tens of shillings, and carry the superfluous 2 tens of shillings, equal to 1 pound, to the column of units of pounds, and then add up the several numbers of pounds as has been before directed, and the sum total will be found to be 331*l.* 14*s.* 1*d.*

ADDITION of Decimals is performed in the same manner as that of whole numbers, as may be seen in the following example:

$$\begin{array}{r} 475,673 \\ 126,730 \\ 32,067 \\ 1,333 \\ \hline 635,803 \end{array}$$

See the article DECIMAL.

In the addition of vulgar fractions, when two or more fractions are to be added into one sum, reduce all the given fractions to simple fractions, of one unit, and one denominator, if they are not so already; then the sum of the numerators, being made a numerator to the common denominator, make the fractional sum sought; which may be farther reduced as the case admits. See FRACTIONS.

ADDITION of Algebra, or the addition of indeterminate quantities, designed by letters of the alphabet, is performed by joining the quantities with their proper signs, and reducing those which are capable of reduction, that is, similar magnitudes. See SIMILAR and ALGEBRA.

Thus a , added to the quantity b , makes $a + b$, and a joined with $-b$, makes $a - b$, $-a$ and $-b$, makes $-a - b$, $7a$ and $9a$ makes $7a + 9a = 16a$; for $7a$ and $9a$ are similar magnitudes.

When algebraical magnitudes, required to be added together, are compounded of several terms, of which some are similar; for instance, if the polynomial $3a^2b^3 - 5c^4 - 4dr + 2s$, were to be added to the polynomial $-a^2b^3 + 4c^4 - a^2b^3 + 4dr$, write down first one of these polynomials, just as it is given.

$$\begin{array}{r} 3a^2b^3 - 5c^4 - 4dr + 2s \\ -a^2b^3 + 4c^4 - a^2b^3 + 4dr - s \\ \hline a^2b^3 - c^4 - 4dr + s \end{array}$$

Then dispose the other polynomial under it in such a manner that the similar terms may fall directly under one another; draw a line under both thus disposed, and, reducing successively the similar terms to their most simple expressions, the sums of the two polynomials will be found to be $2a^2b^3 - c^4 + s$, placing an asterisk or 0 under such terms as totally destroy each other.

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Note, such quantities are called similar, in algebra, as have the same letters, and precisely the same number of letters; so $5abd$ and $2abd$ are similar magnitudes, the former signifying that the magnitude abd is taken 5 times, and the second that it is taken 2 times, in the whole; therefore it is taken 7 times, and therefore should be written $7abd$, instead of $5abd + 2abd$; and as the expression $7abd$ is more simple than $5abd + 2abd$, it is said in this case to be reduced to the most simple expression.

In order to discern similar algebraic magnitudes readily, there is no need of giving attention to their coefficient; but the letters should be written in alphabetical order. Notwithstanding $2bad$, be the same thing as $2abd$ or $2dba$, yet care should be taken not to invert the order of the alphabet; we should not write $2abd$ instead of $2bad$, or of $2bda$. This serves to make the computation the clearer, $5abd$ and $2abd$ appear more like similar magnitudes than $5bad$ and $2bda$, which yet are the same as the former. The quantities $3b^2c$ and $4b^2c$, are likewise similar magnitudes; but the magnitudes $4a^3f$ and $2a^3$ are not similar, though they have the common quantity a^3 , it being essential to similar magnitudes, to have the same letters and the same number of letters.

Observe farther, that positive quantities, or those affected with the sign $+$, are directly opposite to negative quantities, or those preceded by the sign of $-$; thus when the quantities proposed to be added are similar and affected with contrary signs, they wholly or partly destroy one another; that is, in case one be greater than the other, there is destroyed in the greatest a part equal to the least, and what remains is the difference between the greatest and the least, affected with the sign of the greatest.

Now as this operation, or reduction, falls always upon the coefficients: it is manifest that $5df$ and $-3df$, are reducible to $+2df$, since $+5df$ shews that the quantity df is taken 5 times, and $-3df$ also shews that the same quantity df is 3 times retracted: but the same quantity taken 5 times, and subducted 3 times, is the same as if taken but twice.

In like manner $+5fm$ and, $-6fm$, will be reduced to $1fm$, or simply to fm ; for $-6fm$ is the quantity fm 6 times subducted, and $+5fm$ is the same quantity taken 5 times; the remaining quantity fm must therefore be negative, and

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consequently must be $-fm$. See NEGATIVE.

ADDITION of Irrationals, or surds. In these operations it must be observed, that if the surds are not of the same denomination, they must be made to be so: in which case, if they are commensurable to each other, add the rational quantities without connecting them by any sign; and to the sum put the radical sign.

ADDITION of Logarithms. See the article LOGARITHMS.

ADDITION of Ratios, is the same with composition of ratios. See RATIO.

ADDITIONS, among distillers, all such things as are added to the wash or liquor, while fermenting, to increase the quantity and vinosity of the spirit, or to give it a particular flavour. See DISTILLATION.

ADDITIONS, in law, the titles given to a man besides his christian and surname, implying his estate, degree, mystery, trade, place of abode, &c. These additions were ordained to prevent one man's being molested instead of another, and that each individual might be certainly known, and bear his own burden. Additions, in heraldry, signify some things added to a coat of arms as marks of honour.

ADDITIONAL, in a general sense, implies something added to the usual sum or quantity.

ADDITIONAL Duties, in commerce, signify those duties which are charged upon certain commodities, over and above what they used to pay formerly.

ADDITIVE, something to be added. Thus we say additive quantities, ratios, equations, &c.

ADDRESS, in a general sense, implies the conducting any affair with skill, dexterity, and propriety.

ADDRESS, in a particular acceptation, a congratulation, petition, request, or remonstrance, presented to the king in the name of some considerable body of men.

ADDRESS, in commerce, is the direction on the back of a letter or packet, sent by the post or some messenger.

ADDUCTION, in anatomy, the action of the adductors, or adducent muscles.

ADDUCTORS, or ADDUCENT Muscles, in anatomy, a general name for such muscles as serve to draw one part of the body towards another; and consequently are antagonists to the abductors.

The word is formed from *ad*, to, and *duco*, to lead, or draw.

ADDUC-

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ADDUCTOR *Indicis*, a muscle of the index, or forefinger, arising from the internal part of the first bone of the thumb, and terminating in the first bone of the fore-finger, which it draws towards the thumb.

ADDUCTOR *Oculi*, a muscle of the eye, which, by its action, draws the pupil towards the nose. It is also called *Bibitorius*, because it directs the eye towards the cup in drinking.

ADDUCTOR *Pollicis*, a muscle of the thumb which rises tendinous in common with the adductor indicis, and ascends obliquely towards a broad termination at the superior part of the first bone in the thumb: its use is to bring the thumb near the fore-finger.

ADDUCTOR *Pellicis Pedis*, a muscle of the great toe. It arises from the inferior part of the os cuneiforme tertium, and is inserted into the internal part of the ossa sesamoidea of the great toe, which it draws nearer the rest.

ADELLA, or **ADENA**, the Italian name of a fish, thought to be peculiar to the river Po, in Italy. It sometimes increases to the weight of one thousand pounds, and is taken with a very large hook fastened to the end of a chain; and they are obliged to draw it out of the water with a yoke of oxen. It differs from a sturgeon, both in being a river-fish, and in its bulk. When it arrives at a certain size, it loses the barbs it had before, like those of a sturgeon. The flesh of a sturgeon is firm, and of a pleasant taste; but that of this fish is soft, and not so agreeable.

ADEMTION, in the civil law, the revocation of a grant, or donation.

ADENANTHERA, in botany, a genus of plants, whose flower is of a campanulated form, and consists of five leaves. It is one of the decandria-class of Linnaeus, with a long compressed pod, containing several round seeds.

ADENOGRAPHY, a description of the glands.

ADENOIDES, glandulous, or of a glandular form, an epithet applied to the prostate. See *PROSTATE*.

ADENOSUS *Abscessus*, in surgery, a hard crude tumour, resembling a gland, and very difficult to be resolved.

ADEPS, in anatomy, the hard fat, or suet, found in the abdomen, and distinguished from pinguedo; but most writers use the two terms indifferently.

ADEPTS, a name given to those alchemists who pretend to have discovered the philosophers stone, and the universal remedy.

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The word is formed from the Latin, *adipiscor*, to obtain.

ADEQUATE, in a general sense, implies something exactly corresponding to, or expressive of, another.

ADEQUATE *Ideas*, those ideas which perfectly represent all the parts or properties of another. See the article *IDEA*.

ADER, in natural history, the name of a very curious shell, of a fine sky-blue colour, with yellow rays one over another towards the bottom. It is very small, being never above a quarter of an inch in length, and three twelfths of an inch broad. It is pointed at the top, and has slight folds near the hinge, where there is also a small cavity.

ADFFECTED *Equations*, in algebra, an equation wherein the unknown quantity is found in two or more different powers. See *EQUATION*.

ADHATIDA, in botany, a genus of plants, the flower of which consists of a single leaf divided into two lips, of which the upward is bent backwards, and the lower again divided into three segments. The pistil, which is fixed into the lower part of the flower, in the manner of a nail, becomes a fruit or capsule, flat and divided into two cells, containing several small compressed seeds.

ADHESION, in a general sense, the sticking or adhering of two bodies together, either by their own proper action, or the compression of some external fluid.

The word is compounded of *ad* to, and *haere*, to cleave.

Anatomists find in dissections, adhesions of the lungs to the sides of the thorax, pleura, or diaphragm; or of the heart to its pericardium, &c.

ADHESION, in philosophy. See *ATTRACTION of Cohesion*.

ADHESION, among logicians, is the maintaining some tenet, merely on account of its supposed advantage, without considering whether it be supported by any positive evidence.

ADJACENT, an epithet given to such things as adjoin to or are situated near each other.

The word is compounded of *ad*, to, and *jaceo*, to be situate.

ADIANTHUM, maidenhair, in the materia medica, an evergreen plant, with slender, smooth, shining, blackish stalks; producing no manifest flower. The seeds are a fine dust, lying in roundish specks about the edges of the backs of the leaves which curl over and cover them. There are two species of this plant distinguished in the following manner:

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ADIANTHUM *Verum*, or *Capillus Veneris*, true maidenhair. A plant about half a foot high, with several pinnæ of little roundish sinuated or nearly triangular leaves towards the tops of the stalks.

ADIANTHUM *Canadense*, Canada maidenhair; somewhat larger, with spreading branches.

The first sort grows wild in Italy, and the southern parts of France, from whence the dry leaves are sometimes brought to us. The second, a native of America, is cultivated in some of our gardens.

The leaves of both have a slight sweetish, roughish taste, and a pleasant, but weak smell, very perceptible when boiling water is poured on them. They readily give out to the water the whole of their smell, taste, and medicinal virtue: the infusions are not ungrateful; particularly that of the Canada sort, whose flavour is pleasanter and stronger than that of the other. Infusions or decoctions of them, yield a moderately rough, bitterish, mucilaginous extract. Rectified spirit of wine extracts their taste and flavour, and gains from them a deep green colour, but dissolves little of the mucilaginous substance, in which a considerable part of their virtue consists: the extract obtained by inspissating the tincture, is less in quantity, and stronger in taste, than that made with water. Maidenhair has been long esteemed against disorders of the breast; for promoting expectoration, softening recent coughs, and allaying the tickling in the throat occasioned by desfluxions of rheum. For these purposes, a syrup of the true sort, flavoured with orange-flower water, has been usually brought from France; and a syrup of the Canada sort, made with maple sugar, is sometimes received from America. The virtue of the maidenhair is obtainable, however, to much better advantage, by drinking an infusion of the herb as tea, sweetened either with sugar, or by the addition of a little liquorice. The English maidenhair has been commonly substituted in the pectoral syrups and infusions made among us: the Canada species, which appears to be superior to both, is said to have been long made use of in France, and has lately been introduced into practice in this country. *Lewis's History of the Materia Medica.*

ADJECTIVE, in grammar, a word expressive of some quality belonging to the substantive.

But as every quality supposes a substance, of which it is the quality; it follows, that every adjective supposes a substantive. If

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we say the *fine* touches you; the *true* ought to be the subject of our enquiries; the *good* is preferable to the *handsome*; the *rich* relieve you, &c. it is evident that we consider these qualities so far only as they are attached to some substance or agent: the *fine*, that is, the substance which is fine; the *true*, or that which is true, &c. In these examples, the *fine*, the *true*, &c. are not merely adjectives: they are adjectives used substantively; they denote any agent whatsoever, provided that agent be fine, true, good, &c. It therefore follows, that these words are both adjectives and substantives at the same time; they are substantives because they denote an agent; they are adjectives, because they assign a certain qualification to the agent.

There are as many species of adjectives as there are species of qualities, manners, and relations.

We do not know the essence of the substances themselves, we know them only by the impressions they make upon our senses; and therefore we give the object such and such qualities as are proper to the sense those impressions affect: if the eyes are affected, we say that the object is coloured; that it is either white, black, red, blue, &c. If it affects the taste, we denominate it either sweet, bitter, sour, unsavoury, &c. If it regards the sense of feeling, the object is either rough, smooth, hard, soft, fat, oily, dry, &c. &c. Consequently the words white, black, red, blue, sweet, bitter, sour, unsavoury, &c. are so many qualifications given to objects, and therefore so many adjectives; and because these impressions are caused by the action of physical objects upon our senses, we may properly call these words by the name of physical adjectives. It will however be necessary to observe, that there is nothing in the object similar to the sentiment they excite in us; all we can infer from hence is, that such objects have the property of exciting in us such a sensation, or such a sentiment, according to the disposition of our organs, and the laws of universal mechanism. A needle, for instance, is such an object, that if the point of it be forced into the skin, the party will feel a sensation of pain; but this sensation will be peculiar to the person affected, and not at all to the needle; we may say the same of every other sensation. There are also metaphysical adjectives, which are equally numerous, and from which we might form as many different classes as there are kinds of contemplations under which the mind may consider physical and metaphysical objects. As we are accus-

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comed to qualify physical beings, in consequence of the immediate impressions they make upon us; so that we also qualify metaphysical and abstract beings in consequence of some considerations of our mental faculty, with respect to these beings. The adjectives that express these species of contemplations are what we call metaphysical adjectives. Perhaps the following examples will better explain what we mean by metaphysical adjectives. Suppose a row of trees in the midst of a vast plain, and that two persons are just entered this row, one at the one end, and the other at the other; each of these, observing the trees of this row, says, this is the first; so that the tree which each person calls the first, is the last with regard to the other. Thus first and last, together with the other nouns of ordinal number, are nothing more than metaphysical adjectives; or more properly adjectives of relation and numeral affinity. The nouns of cardinal numbers, such as two, three, four, &c. are also metaphysical adjectives, because they serve to qualify a collection of individuals. Great and little are also metaphysical adjectives; for any object is neither great nor little considered in itself; it acquires those appellations only from its relation to some other object: that to which we have given the name of great, has caused in our mind a different impression from what we call little; it is the perception of this difference which occasions us to invent the names of great, little, less, &c. Different, similar, alike, are likewise metaphysical adjectives, which qualify the substantives in consequence of certain particular contemplations of the mind. The word different, for instance, qualifies a noun, when we feel it has not made impressions in our mind similar to those of another. Where two objects are so formed that we perceive they are distinct, though in some particulars they make similar impressions on our mind, we say that they are similar in these particulars, because in that respect we find ourselves affected in the same manner: similar therefore is a metaphysical adjective. If we walk round a fortified city, we shall perceive that it is inclosed within its bulwarks; we observe a country bounded on the one side by a river, on the other by a forest; we see a picture inclosed in its frame, the extent whereof we can even measure, and the limits of which we plainly perceive: we place a book or a guinea upon a table, and observe that they occupy only a small extent upon it; that the table fills but a small space of the chamber, and that the

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chamber itself is surrounded with walls in short, all bodies appear to be bounded by others, beyond which there is still space; these bodies therefore are bounded, terminated, and ended: thus bounded, terminated, and ended, are nothing more than metaphysical adjectives; because they imply only the bounds and knowledge of a further extension. On the other hand, should we apply ourselves to reckon any number whatsoever, whether it be of the sands on the sea shore, or of the leaves of all the trees growing upon the face of the earth, we shall perceive that this number can be increased, till at last, tired with innumerable additions, which are always possible, we say, that this number is infinite, or such that we cannot perceive its limits, because we can always increase the sum total. The same may be said of all extended bodies, the boundaries of which our imaginations can always remove, at last, to infinite extension; the term infinite, therefore, is a metaphysical adjective. Perfect is again another metaphysical adjective: custom shews us, that there are beings that have advantages of which others are destitute: we find that the former are therefore in that respect of more value than the latter: plants, flowers, and trees, are worth more than common stones; animals have qualities still more preferable to those of plants: and man has knowledge which raises him above animals. If we examine attentively two pictures of the same person, one whereof recalls to our mind, in a very forcible manner, the image of that person, while the other excites only a faint idea, we say, that the picture speaks, or that it is perfect, at least with respect to the other.

AD INQUIRENDUM, in law, a writ commanding enquiry to be made about something connected with a cause depending in the king's courts.

ADJOURNMENT, the putting off a court, or other meeting, till another day.

There is a difference between the adjournment and the prorogation of the parliament; the former not only being for a shorter time, but also done by the house itself; whereas the latter is an act of royal authority.

ADIPOSE, an epithet applied by physicians, anatomists, &c. to several cells, ducts, &c. belonging to the fat of bodies.

ADIPOSE Membrane, *Adiposa Membrana*, in anatomy, a particular membrane, investing the human body immediately under the skin, and supposed to be the basis of the fat which is deposited in its cells. This is not a single membrane, but a congeries of

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of a great number of membranous laminæ, joined irregularly to each other at different distances, so as to form numerous interstices of different capacities communicating with one another.

ADIT *of a Mine*, the passage, or opening, through which the miners pass into the mine.

The word is Latin, *aditus*, signifying a way or passage.

ADJUDICATION, in law, the act of adjudging, decreeing, or determining a cause.

The word is compounded of *ad*, to, and *judico*, to give sentence.

ADJUNCT, among philosophers, signifies something added to another, without being any necessary part of it.

ADJUNCT, in metaphysics, some quality belonging to either the body or mind, whether natural or acquired.

ADJUNCT, in rhetoric and grammar, an epithet, or adjective, added to enlarge and augment the energy of a discourse.

AD JURIS REGIS, in law, is a writ which lies for a clerk presented to a living by the king.

ADJUTAGE, in hydraulics. See **AJUTAGE**.

ADJUTANT, a military officer whose business is to assist the major, and thence often called the aid-major.

ADJUTORIUM, in anatomy the bone of the arm, generally called the humerus. See **HUMERUS**.

ADMEASUREMENT, in law, is a writ for the adjusting the shares of something to be divided.

ADMINICLE, *adminiculum latin*, a term used in our old law books, to imply any aid, help, assistance, or support. Antiquarians call the attributes of Juno, represented on medals, by the name of adminicles.

ADMINISTRATION, in a general sense, the direction of government, or direction of affairs.

ADMINISTRATION, in law, signifies the office of an administrator.

ADMINISTRATOR, in law, the person to whom the goods, effects, or estate of a testator are intrusted, and for which he is accountable when required. The bishop of the diocese, where the party dies, is regularly to grant administration; but if the intestate had goods in several dioceses, administration must be granted by the archbishop in the prerogative court.

ADMINISTRATRIX, a woman who acts as administrator.

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ADMIRAL, a great officer, or magistrate, who has the government of a navy, and the hearing of all maritime causes.

It is probable that both the name and dignity were derived from the Saracens, and, by reason of the holy wars, brought amongst us; for admiral, in the Arabian language, signifies a prince, or chief ruler, and was the ordinary title of the governors of cities, provinces, &c. and that therefore they called the commander of the navy, by that name, as a name of dignity and honour. And, indeed, there are no instances of admirals in this part of Europe before the year 1284, when Philip of France, who had attended St. Lewis in the wars against the Saracens, created an admiral. Du Cange asserts, that the Sicilians were the first, and the Genoese the next, who gave the denomination of admiral to the commanders of their naval armaments, and that they took it from the Saracen or Arabic Emir, a general name for every commanding officer. As for the exact time when the word was introduced among us, it is uncertain; but in the fifty-sixth year of the reign of Henry III. not only the historians, but the charter themselves, very frequently use the word admiral.

Formerly there were generally three or four admirals appointed in the English seas, all of them holding the office *durante bene placito*; and each of them having particular limits under their charge and government; as admirals of the fleet of ships, from the mouth of the Thames, northward, southward, or westward. There were also admirals of the Cinque ports, as in the reign of Edward III. when one William Latimer was stiled, *admiralis quinque portuum*; and we sometimes find that one person has been admiral of the fleets to the southward, northward, and westward: but the title of *admiralis Angliæ* was not frequent till the reign of Henry IV. when the king's brother had that title given him, which in all commissions afterwards was granted to the succeeding admirals. It may be observed, that there was a title above that of admiral of England, which was, the king's lieutenant-general of the sea; this title is mentioned in the reign of Richard II.

Before the use of the word admiral was known, the title of *custodes maris*, i. e. *wardens of the sea*, was made use of.

Lord high ADMIRAL of England, in some ancient records called *capitanus maritimarum*, i. e. *superintendent of Marine*, an officer of great antiquity and trust, as appears by the laws of Oleron, so denominated from the place they were made at by

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Richard I. The first title of admiral of England, expressly conferred upon a subject, was given by patent of Richard II. to Richard Fitz-allen, jun. earl of Arundel and Surry: for those who before enjoyed this office were simply termed admirals, though their jurisdiction seems at large, especially in the reign of Edward III. when the court of admiralty was first erected. This officer has the management of all maritime affairs, and the government of the royal navy, with power of decision in all maritime cases, both civil and criminal: he judges of all things done upon the sea, in any part of the world; upon the sea-coasts, in all ports and havens, and upon all rivers below the first bridge from the sea. By him, vice-admirals, rear-admirals, and all sea-captains are commissioned; all deputies for particular coasts, and coroners to view dead bodies found on the sea-coasts, or at sea: he also appoints the judges for his court of admiralty, and may imprison, release, &c. All ports and havens are *infra corpus comitatus*, and the admiral hath no jurisdiction of any thing done in them. Between high and low water-mark, the common law and the high admiral have jurisdiction by turns, one upon the water, and the other upon the land. The admiral hath power to arrest ships in great streams, and during the same voyages, every commanding officer and soldier of ships of war, shall observe the commands of the admiral, &c. on pain of death, or other punishment. The lord high-admiral has power, not only over the seamen serving in his ships of war, but over all other seamen, to arrest them for the service of the state; and, if any of them run away, without leave of the admiral, he hath power to make a reward thereof, and certify the same to the sheriffs, mayors, bailiffs, &c. who shall cause them to be apprehended and imprisoned.

This is so great an office, in point of trust, honour, and profit, that it has usually been given to princes of the blood, or the most eminent persons among the nobility. We have had no high-admiral for many years, the office being put in commission, or under the administration of the lords commissioners of the admiralty, who by statute have the same power and authority as the lord high-admiral.

ADMIRAL, also signifies the commander in chief of any single fleet, or squadron, or, in general, any flag officer whatever. The commander of a fleet carries his flag at the main-top-mast head.

Vice ADMIRAL, the commander of the second squadron, and carries his flag at the fore-top-mast head.

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Rear ADMIRAL, the commander of the third squadron, and carries his flag at the mizzen-top-mast head.

Vice ADMIRAL is also an officer appointed by the lords commissioners of the admiralty. There are several of these officers established in different parts of Great Britain, with judges and marshals under them, for executing jurisdiction within their respective limits. Their decrees however are not final, an appeal lying to the court of admiralty in London.

ADMIRAL, in natural history; the name of a beautiful shell of the voluta kind, greatly admired by the curious. There are four species of this shell called grand-admiral, vice-admiral, orange-admiral, and extra-admiral. The first is extremely beautiful, of an elegant white enamel, variegated with bands of yellow, which, in some measure, represent the colours of the flags in ships of war. It is of a very curious shape, and finely turned about the head; but its distinguishing character is a denticulated line running along the center of the large yellow band; and this distinguishes it from the vice-admiral, though the head of the latter is also less elegantly formed. See plate I. fig. 4. where A is the admiral, and B the vice-admiral. The orange-admiral has more yellow than any of the others, and the bands of the extra-admiral run into one another.

ADMIRALTY, the office of lord high-admiral, whether discharged by one single person, or by joint commissioners, called lords of the admiralty.

Court of ADMIRALTY, a sovereign court, held by the lord high-admiral, or lords of the admiralty, where cognizance is taken in all maritime affairs. All crimes committed on the high-seas, or on great rivers below the first bridge next the sea, are cognizable in this court only, and before which they must be tried by judge and jury. But in civil cases the mode is different, the decisions being all made according to the civil law.

ADMIRATION, in grammar, a mark or character importing something wonderful, or worthy of admiration. It is marked thus (!).

ADMISSION, among ecclesiastical writers, the act of a bishop's admitting, or allowing a clerk to be able, or properly qualified, for serving a cure.

ADNATA, of *ad*, and *nato*, in natural history, a general name for whatever things grow on animal or vegetable bodies, whether they are inseparable, as hair, horns, &c. or only asciticious, as the various epifitcal plants.

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ADNATA *Tunica*, in anatomy, one of the tunics or coats of the eye, otherwise called conjunctiva and albuginea. It is the same part with that termed the white of the eye, and formed by the tendinous expansions of the muscles which move that organ. See the article **EYE**.

ADNATA, or **ADNASCENTA**, among gardeners, signify those off-sets, which proceed, by a new germination under the earth, from the lilly, narcissus, hyacinth, and other flowers, and afterwards grow to the roots.

ADNOUN, a term used by some grammarians to denote the adjective. See the article **ADJECTIVE**.

ADONAI, one of the names of God, used by the sacred writers.

The word is in the plural number, and properly signifies *my lords*.

ADONIA, in antiquity, were festivals celebrated in honour of Venus, and in memory of the beloved Adonis. See **ADONIS**.

ADONIAS, a name given by the ancient botanists to the anemomy, from an idle supposition of its having owed its origin to the tears shed by Venus, in lamenting the death of her favourite Adonis. See **ANEMONY**.

ADONIC, a sort of verse used by the Greek and Latin poets, consisting of two feet, the first of which is a dactyle, and the second a spondee, or trochee.

It was originally used in the lamentations for the death of Adonis, and from that circumstance acquired its name. Its principal use among the poets, however, is only as a conclusion to the Sappic verse; as in the following:

*Scandit æratas viroscas naves
Cura, nec turmas equitum relinquit
Ocyor cervis & agente nimbo
Ocyor euro.*

HORAT.

***ADONIS**, in fabulous history, a youth of incomparable beauty, he was the son of Cynaras by his own daughter Myrrha. The goddess Venus fell in love with him, and often came down to meet him on Mount Libanus. But Mars transformed himself into a wild boar, and as Adonis was hunting struck him with one of his tusks in the groin and killed him. Venus hearing his cries, hastened to his assistance, and in her way trod on a thorn, when the blood which trickled from her foot produced the damask rose; but coming too late to save him, she changed him into the flower anemone, which still retains a crimson colour. After this she went to hell, and prevailed on Proserpine to suffer Adonis

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to be six months with her in heaven, and continue the other six months in the infernal regions.

ADONIS, in zoology, a small fish of a cylindrical shape, and about six inches long, supposed by Mr. Ray to be the exocoelis.

ADONIS *Flos*, in botany, a genus of polyandrious plants, called, in English, pheasants eye, or red maithers.

ADOPTION, an act, whereby any person takes another into his family, owns him for his son, and appoints him for his heir. The custom of adoption was common among the Romans; yet it was not practised, but for certain causes expressed in the laws, and with certain formalities usual in such cases: they first learnt it from the Greeks. This adoption was a sort of imitation of nature, intended for the comfort of those who had no children; therefore he that was to adopt was to have no children of his own, and to be past the age of getting any; nor were eunuchs allowed to adopt, as being under an actual impotency of begetting children; neither was it lawful for a young man to adopt an elder, because that would have been contrary to the order of nature; nay, it was even required that he who adopted should be at least eighteen years older than his adopted son, that there might appear a probability of his being the natural father. Adoption is also applied to the passion of Our Saviour, and the communication of the merits of his death, which being applied to us by baptism, we become the *adopted* children of God, and have a part in the inheritance of heaven. This is the doctrine taught by St. Paul in several places particularly in Rom. viii. 15. Gal. iv. 45.

ADORATION, a worship the pagans gave their pretended deities: the posture for this religious regard was putting their hand to their mouth, and kissing it. Adoration, in scripture, is taken not only for that veneration or worship due to God alone, but likewise for those marks of outward respect which are paid to superiors. Adoration of both kinds is generally attending with bowing the body very low, and sometimes with prostration, or throwing one's self on the earth. The election of popes is performed two ways, by adoration, and by scrutiny. In election, by adoration, the cardinals rush hastily, as if agitated by some spirit, to the adoration of some one among them, to proclaim him pope. When the election is carried by scrutiny, they do not adore the new pope till he is placed on the altar.

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ADOSSE, in heraldry, implies two animals placed back to back.

AD QUOD DAMNUM, in law, a writ necessary to be issued before the king grants certain liberties, as a fair, market, or the like; ordering the sheriff to enquire what damage is like to be the consequence of such a grant.

ADRACHNE, the arbutus, or strawberry-tree. See **ARBUTUS**.

ADRAMUS, in mythology, the name of a deity peculiar to Sicily, who was worshipped in the city of Adram, which thence obtained its name.

* **ADRIAN**, the only Englishman that ever sat in St. Peter's chair. His name was Nicholas Brekspere. He was the son of one Robert de Camera, a man of learning, but poor; and was born at Langley, near St. Albans: his father being a lay-brother in the abbey of St. Albans, he daily received alms at their gate; but being unable to obtain admission into the house, he went to Arles, in France, where he was first admitted servitor to the regular canons of St. Rufus, then one of that body, and at length general of the order. Pope Eugenius III. made him cardinal and bishop of Albania, and sent him as his legate to Denmark and Norway, where he laboured with great zeal and success in the conversion of the people; and at his return was unanimously chosen pope on the 11th of December, 1154, after the death of Anastatius IV. Adrian died on the first of September, 1159.

ADRIANISTS, in ecclesiastical history, a sect of heretics divided into two branches; the first were disciples of Simon Magus, and flourished about the year 34. Probably this sect, and the six others which sprung from the Simonians, took their name from the particular disciples of Simon. The second were the followers of Adrian Hamstead, the anabaptist, and held some particular errors concerning Christ. *Bingham's Antiq.*

AD TERMINUM *Qui præterit*, in law, a writ of entry which lies for the lessor or his heirs, if after the expiration of a lease, whether it be for years or life, the lessee, or other occupier of the land, &c. refuses to quit the premises.

ADVANCED, in a general sense, signifies something placed or situated before another.

ADVANCED Ditch, in fortification, the ditch surrounding the glacis or esplanade of a place.

ADVANCED Guard, a military term, denotes the first line of an army marching

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towards an enemy. But it is more particularly used to signify a small party of horse stationed before the main guard.

ADVANCER, among sportsmen, denotes one of the starts, or branches of a buck's attire, between the back antler and the palm.

ADVENT, a festival in the Christian church; being the four Sundays immediately preceding Christmas.

It is appointed to employ the thoughts of Christians on the first Advent, or coming of Christ in the flesh, and his second Advent, or coming to judge the world. The primitive Christians practised great austerity during this season. At first they fasted three days in the week, but were afterwards obliged to fast every day.

ADVENTITIOUS, whatever is extrinsically added to a thing. This adventitious matter is what is joined fortuitously to a body.

ADVENTITIOUS, among civilians, implies goods or effects acquired accidentally, or by the liberality of a stranger. It also signifies those effects which a person acquires by collateral, not by direct, succession.

AD VENTREM *Inspiciendum*, in law, a writ commanding a woman to be searched, whether she be with child by a former husband, on her withholding lands from the heir.

ADVERB, *adverbium latin*, in grammar, a word joined to a verb, adjective, &c. and solely applied to the use of qualifying and restraining the latitude of their signification.

Adverbs, though very numerous, may be reduced to certain classes, the principal of which are those of order, of place, of time, of quantity, of quality, of manner, of affirmation, of doubting, of comparison, and of interrogation.

ADVERSARY, an enemy, or one that opposes another.

ADVERSARY, in law, either of the contending parties, considered as opposing each other.

Letter of ADVICE, in commerce, implies a letter sent by the drawer of a bill of exchange, or the remitter of goods, &c. to his correspondent, informing him that he has drawn such a bill, or sent such a quantity of merchandize, by such a ship, or other conveyance.

ADULTERATION, in a general sense, signifies the act of debasing, by some improper mixture, something that was pure and genuine.

ADULTERATION of Coin, is the making it of a baser metal, or adding a greater

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greater proportion of alloy than is used in the genuine and standard coin. All nations have considered this action as a capital offence. To prevent diminishing of coin, an act passed in 1773, empowering any person to cut in pieces any English gold coin that had been clipped, or otherwise diminished than by common natural use or wear.

ADULTERATION, in pharmacy, the act of using ingredients of less virtue in a medicinal composition, in order to save expence. This pernicious practice has greatly impeded the progress of the healing art, and too often proved of fatal consequence to the patient.

ADULTERY, the crime committed by married men or women, who, in violation of their marriage vow, have carnal commerce with another besides the person to whom they plighted their faith. The Mosaic law commanded that the man and the woman who had been guilty of adultery should be put to death. The Greeks as well as Romans enacted severe laws against adulterers. Solon, the wise law-giver of the Lacedemonians, made it lawful to kill the adulterer, and enacted that the woman should be punished, by stripping her of the ornaments belonging to her quality, by banishing her from all religious assemblies, and from all society in general. The Thurians had an express law, that adulterers should be represented upon the stage, and consequently exposed to public infamy. Among the primitive Christians' adulterers were not admitted to the communion, till they had done seven years penance in fasting and sackcloth, in severe afflictions and sorrow. The Saxons formerly burnt the adulteress, and erected a gibbet over her ashes, whereon they hanged the adulterer.

Among the Danes and Saxons in England, the punishment for adultery and murder was the same. At present adultery is considered as a spiritual offence, and therefore the injured party can only bring his action of damages against the adulterer; while all the punishment the adulteress receives is the being divorced from her husband, and stripped of her dower.

ADULTERY, in the language of scripture, sometimes implies idolatry, or the worshipping of false gods.

ADVOCATE, among the Romans, implied a person skilled in their law, and who undertook the defence of causes at the bar, without fee or reward. Such persons were long held in great esteem; but, in process of time, they became venal, and mercenary, and thereby lost the respect

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that was formerly paid them. The word advocate is still used in countries where the civil law obtains, to imply those who plead the cause of clients at the bar. In Scotland there is a college of advocates, consisting of one hundred and eighty persons, appointed to plead all actions before the lords of session.

Lord ADVOCATE, is one of the officers of state in Scotland, who pleads in all causes of the crown, or wherein the king is concerned.

ADVOCATE, in ecclesiastical history, a person whose function it was to defend the laws and revenues of the church and its religious communities. *Consistorial ADVOCATES* are officers of the apostolic chamber, who plead in the consistories at Rome. *Fiscal ADVOCATE*, in Roman antiquity, was an officer of state under the Roman emperors, who pleaded in all causes wherein the treasury was concerned.

ADVOWSON, in law, the right of patronage, or presentation to a vacant benefice. Avowsons are either appendant or in gross; the former depend upon, and pass as appurtenances to a manor or lands; but the latter is a right of presentation subsisting by itself, and belonging to a person, without any relation to manor or lands.

ADUST, among physical writers, is a term applied to such fluids of the human body, as are become of a hot and fiery nature.

ADY, in botany, the name of a species of palm-tree, found in the island of St. Thomas. The fruit resembles a lemon both in size and shape, and contains an aromatic kernel, whence an oil is expressed, which is used instead of butter by the inhabitants.

ADYTUM, in antiquity, the most retired and sacred part of the heathen temples, into which only priests were suffered to enter, and from whence oracles were delivered.

ADZE, a kind of crooked ax used by shipwrights, coopers, &c.

Æ, in grammar, a diphthong or double vowel, composed of A and E. Grammarians are not agreed with regard to the use of this diphthong in the English language; some being for retaining it in all words where it was used by the ancients, and others for laying it totally aside, and supplying its place with the single E. Mr. Johnson is of the latter opinion, and observes, that it seems not properly to have any place in the English alphabet.

ÆACEA, in antiquity, solemn feasts and games celebrated at Ægina, in honour of Æacus, who, on account of the justice

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he dispensed upon earth, was feigned to have been appointed one of the judges in hell.

ÆCHMALOTARCH, in antiquity, was a title given to the principal leader, and governor of the Hebrew captives residing in Chaldaea, and the neighbouring country. The Æchmalotarch, whom the Jews themselves call Resch-galuth, i. e. Prince or Chief of the captivity, at present, is nothing more than the head of their religion, like the Episcopus Judæorum in England, the Altarch at Alexandria, and the Elhnarch at Antioch.

ÆDILE, *Ædilis*, among the ancient Romans, implied a magistrate, whose chief business consisted in superintending edifices of all kinds, especially those which belonged to the public, as temples, aqueducts, bridges, &c. They had also the care of the high-ways, public places, weights, and measures. The prices of provisions were also fixed by the ædiles, who also punished lewd women, and such persons as frequented gaming houses. They had the custody of the plebiscita, or orders of the people; inspected all comedies, and other pieces of wit; and were obliged to exhibit magnificent games to the people at their own expence. There were originally only two ædiles, who were chosen out of the common people; but these in general being unable to support the enormous expence attending their office, two others were created out of the patrician order: these took upon themselves the charges of the games, and were called *ædiles curules*, or *maiores*, as the two plebeians were stiled *minores*.

Julius Cæsar, in order to ease these four magistrates, increased their number to six, calling the two additional ones *ædiles cereales*, from their having the inspection of all manner of grain committed to their care.

* **ÆGEUS**, in fabulous history, king of Athens, and the father of Theseus. The Athenians having basely killed the son of Minos, king of Crete, for carrying away the prize from them, Minos made war upon the Athenians; and being victorious, imposed this severe condition on Ægeus, that he should annually send into Crete seven of the noblest of the Athenian youths, chosen by lot, to be devoured by the Minotaur. On the fourth year of this tribute the choice fell on Theseus. The good king, at his son's departure, gave orders, that as the ship sailed with black sails, it should return with the same, in case he perished; but if he came back victorious, he should change them into white. Theseus, after having killed the

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Minotaur, forgot his father's instructions. Mean while the old king, impatiently waiting for his return, went every day to the top of a high rock, that overlooked the ocean, to see what ships appeared in view; and at last discovering his son's vessel, with the sable sails, he threw himself into the sea, which, from his name, was called the Ægean Sea. The Athenians decreed Ægeus divine honours, and sacrificed to him as a marine deity, the adopted son of Neptune.

* **ÆGIALEA**, in fabulous history, daughter of Adrastus, King of Argos, and wife to Diomedes. 'Tis related that Venus, out of revenge to Diomedes, who had wounded her in the arm at the siege of Troy, fired his wife with so lascivious a passion, that she was for ever running after the young men.

ÆGILOPS, in surgery, an abscess formed in the corner of the eye next the nose.

As the inflammation in the ægilops tends rather to suppuration than resolution, the tumour must be brought to maturation as soon as possible, lest it should turn to a fistula lachrymalis. The applications proper for this purpose are emollient cataplasms, or plaisters of diachylon with the gums. But as soon as the matter is known to be formed, the lower part of the tumour should be opened with a knife or lancet, the matter gently pressed out, and the ulcer carefully deterged and healed in the common manner.

If the ulcer breaks spontaneously, as it often does, and the aperture be so small that the matter cannot discharge itself, it ought immediately to be enlarged with a piece of prepared sponge or gentian root, or with the knife. After which it must be treated like other ulcers. If the bone be found to be carious, it will be proper to dress it with lint dipt in spirit of vitriol, or the essence of euphorbium. And over the common dressings, a compress dipt in lime-water must be applied till the caries is removed, and the wound fit for healing. *Heister's Surgery.*

* **ÆGINA**, in fabulous history, the daughter of Æsopus, king of Bæotia; she was beloved by Jupiter, who debauched her in the similitude of a lambent flame, and then carried her from Epidaurus to a desert island called Cænope, to which she gave her own name.

* **ÆGIPAN**, in mythology, a name given to the god Pan, from his being represented with the horns, legs, feet, &c. of a goat.

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ÆGIS, in mythology, the shield presented by Jupiter to Minerva, after his having covered it with the skin of Amalthea, the goat who suckled him. Minerva, after this, fixed Medusa's head in the middle of the Ægis, by which means it obtained the power of turning into stone all who saw it.

ÆGISTHUS, in fabulous history, the son of Thyestes, by his own daughter Pelopeia, who, to conceal her shame, exposed him in the woods. According to some, he was suckled by a goat, whence he was called Ægisthus. He corrupted Clytemnestra, the wife of Agamemnon, and having, by her assistance, killed her husband, reigned seven years in Mycenæ; but both he and Clytemnestra were slain by Orestes, the son of Agamemnon.

ÆGYPIUS, in fabulous history, the son of Antheus, who having debauched Timandra, her son Neophron, in return, seduced Bulis, Ægyptius's mother; and having received intelligence where he was to meet Timandra, conveyed Bulis thither in her room. Ægyptius lay with her, when fallen asleep, his mother viewing him, knew him to be her son: when seized with shame and remorse, she took his sword, and was going to make use of it in putting out his eyes; but was prevented by his waking. When Ægyptius seeing his error, wished the memory of this incest might be buried in his death: on which Jupiter turned Ægyptius and Neophron into vultures, Bulis into a di-dapper, and Timandra into a timmouse.

ÆGYPTIACUM, in pharmacy, the name of a detergent ointment, composed of verdigrise, honey and vinegar, boiled to a proper consistence, greatly used by surgeons in cleansing old and foul ulcers. Dr. Quincy is of opinion, that it owes its name to the colour of the composition, which is a dusky brown, somewhat resembling that of the skins of the Ægyptians.

Mel **ÆGYPTIACUM**, the scum of the abovementioned ointment taken off while the medicine is boiling to a proper consistence. It has nearly the same properties, and is used in the same intentions as the former.

ÆLURUS, in mythology, a deity worshipped by the ancient Ægyptians, under the form of a cat, or that of a man, with the head of that animal. They had likewise a goddess, whom they represented under the figure of a woman with the head of a cat. The Ægyptians had so superstitious a regard for this animal, that the killing it, whether by accident or design, was punished with death: and Diodorus relates, that in the time of extreme

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famine, they chose rather to eat one another, than touch these sacred animals.

ÆNEAS, in fabulous history, a famous Trojan prince, son of Anchises and Venus. At the destruction of Troy he bore his aged father on his back, and saved him from the Greeks; but being too solicitous about his son and household gods, lost his wife Creusa: getting on board a ship, he set sail, and landed in Macedonia, in Sicily, and in Africa, where he was kindly received by queen Dido; but forsaking her he landed in Italy, where he married Lavinia the daughter of king Latinus, and defeated Turnus, to whom she had been contracted. After the death of his father-in-law he was made king of the Latins, over whom he reigned three years: but joining with the Aborigines, he was slain in a battle against the Tuscans. Virgil has rendered the name of this prince immortal, by making him the hero of his poem.

ÆNIGMA, a dark, perplexed, or puzzling question, in which some well known object is concealed under an obscure description.

ÆNIGMATICAL, belonging to, or delivered in, the dark or perplexed manner of an ænigma.

ÆOLIC Dialect, among grammarians, one of the five dialects of the Greek tongue, used by the inhabitants of Æolia.

ÆOLIC Verse, in prosody, a verse consisting of an iambus, or spondee, then of two anapests, separated by a long syllable, and lastly of another syllable.

ÆOLIPILE, in hydraulics, a hollow ball of metal, generally used in courses of experimental philosophy, in order to shew that it is possible to convert water into an elastic steam or vapour by heat.

ÆOLUS, in mythology, the god of the winds, was the son of Hippotas, by Menecla, the daughter of Hællus, king of Lipara. He dwelt in the island Strongyle, one of the seven islands that are called Æolian, as being under the dominion of Æolus. Others say, that his residence was in the island Lipara: and others at Rhegium, in Italy. But all agree in giving him an absolute authority over the winds, which they say he confined in a vast cavern, and let loose whenever he pleased.

ÆOLIAN Harp, or *Harp of Æolus*, a musical instrument, so contrived that, being properly placed in a current of air, emitted thro' an aperture in the window of an apartment, produces admirable music merely by the wind playing on the strings.

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ÆRA, in chronology, a fixed point of time from which chronologers reckon. Æras are either Christian, Jewish, Heathen, or Mahometan. Christian æras are deduced either from the birth of Christ, from the emperor Dioclesian, or the beginning of the world. Chronologers differ as to the true point of time in which Christ was born: some place it two years, others four, and some five, before the common æra, which is that in general used among the Christians.—For the different æras, or epochas, used by chronologers, see **EPOCHÆ**.

AERIAL, an epithet applied to every thing partaking of the nature of air, or that is connected with, or belong to, the air.

AEROLOGY, an account of the nature and properties of the air.

AEROMANCY, a species of divination among the ancients, performed by observing the air, winds, &c.

AEROMANCY, is used by some writers to signify the art of foretelling the various changes of the air and weather, by means of barometers, hydrometers, thermometers, &c.

ÆRUGO, in natural history, signifies the rust of copper, whether natural or artificial. The former is found about copper mines, and the latter made by corroding copper-plates with acids. See **VERDIGRISE**.

ÆS, in natural history, signifies copper. It is also used for money coined of that metal.

ÆS Ustum, a chemical preparation of thin leaves of copper, sulphur, and nitre, placed *stratum super stratum* in a crucible, and set in a charcoal fire, till all the sulphur is consumed; after which, the copper is taken out of the crucible and reduced to powder. Some quench the leaves of copper in vinegar, and repeat the calcination. Its principal use is in colouring glass, to which it gives a beautiful tincture. The surgeons use it as a detesive; and some have given it internally: but it is certainly a dangerous medicine, and ought to be avoided.

ÆSCHNA, in natural history, the name of a four-winged water-fly, with a long body, hairy near the tail.

ÆSCULAPIUS, in mythology, the god of physic. The poets say he was son of Apollo, by the nymph Coronis; who, afterwards favouring a Thracian youth, named Ischys, was struck through with darts by Apollo: but he, repenting the action, opened her womb, and, taking out the child, called him Æsculapius, and

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committed the care of his education to Chiron.

Snake of ÆSCULAPIUS, Anguis Æsculapii, in natural history, a harmless kind of a serpent, of an oblong shape, an ell in length, and of a yellowish colour, except on the back, where it is brown. Both jaws are armed with many very sharp teeth, and on the neck are two small eminences. These are very common in Spain, Italy, and other warm countries. Seba has mentioned the following seven sorts of æsculapian serpents: the first has the whole body encircled from the head to the tail, with broad brown and black streaks; and the scales that cover the body are of an ash colour and grey, mixed with white. The Brasil serpent, variegated with divers colours, is defended with strong scales of a dull blue colour, mixed with black, and finely undulated. The head is curiously mottled and speckled, and the transverse scales on the belly are mostly white. The æsculapian serpent of Panama in America has a bluish violet coloured body, and the belly is of a paler blue, with transverse large white scales, joined close together, except at the bending of the back, where they are all separated. The head is covered with long broad uniform scales. The mouth is armed with sharp crooked teeth; and it lives upon mice and small birds. Its excrements smell like musk. The argoli is an American serpent, of the æsculapian kind. The scales are rhomboidal, and of a greyish black, with large bay brown spots, some of which are round, and others oblong; but the belly is whitish, and the tail terminates in a point. Another species of argoli is of the same kind. Its scales are of a whitish ash colour, disposed in a beautiful manner, and more exactly than the former. The tail is blunt at the end, and the head and eyes shining, and fiery. The æsculapian serpent of Brazil is near three ells in length, with the head covered with large beautiful scales, and the neck surrounded by a narrow collar. The scales on the body are white, and in the shape of lozenges, each being marked in the middle with a small black furrow. From the neck to the tail there are large red and brown spots, which are longish near the head, and shorter as they approach to the tail. The mouth is armed with very small teeth. The æsculapian serpent, of the East-Indies, is very large, and the upper part of the body is covered with yellow scales, shaded with dusky brown, and shine remarkably. It is encircled with bay brown streaks, some of which are narrow, others broad. The scales

scales on the sides, and under the belly, are of a yellowish ash colour; the head is little, short and prettily variegated with black and brown; the forehead is marked with two whitish spots, and the neck is surrounded with a white ring. The teeth are very small, the body is round and fleshy, and the tail blunt. *Brookes's Natural History.*

ÆSON, in fabulous history, the king of Thessaly, and father of Jason; Medea, at Jason's request, by the help of her magical charms, restored the old king Æson to youth.

ÆSOP, a Greek author, celebrated for his fables, was according to the general opinion, a Phrygian. He was born a slave, and carried to Athens, where he learnt moral philosophy. At length he was sold to Xanthus of the isle of Samos, and afterwards to Idmon, of the same island, who had, at the same time, Rhodope, the famous courtesan, for his slave. He composed ingenious, useful, and agreeable fables, by which he obtained great reputation throughout all Greece; when Idmon, as a reward for his service, his abilities, and his virtue, set him free. The report of Æsop's wisdom having reached the ear of Cræsus, that prince sent for him to his court, and, by the favours he conferred on him, engaged him to consent to stay with him as long as he lived. Æsop there conversed with Solon and the other wise men of Greece. He travelled to Athens, when it was under the government of Pisistratus, and appeared among the seven wise men of Greece at the court of Periander, the tyrant of Corinth. At his return to Sardis, Cræsus sent him to Delphos, in order to make a magnificent sacrifice to Apollo, and to distribute to each of the citizens four minas of silver. But Æsop seeing that lands near Delphos, capable of being cultivated, were lying waste, he reproved the Delphians for their laziness, and after the sacrifices were performed, sent the money that was left to Sardis. This conduct so enraged the Delphians, that they cast him down from the top of a rock, under the pretence of his having stolen a golden cup consecrated to Apollo. This cup they had concealed in one of his bundles. All Greece was concerned for the death of this great man, and the Athenians erected to him a magnificent statue.

ÆSTUARY, in geography, implies an arm of the sea, running a considerable way into the land.

ÆSTUARY, among physicians, implies a vapour-bath, or any other con-

trivance for conveying heat to the whole, or any particular part of the body.

ÆTHER, in philosophy, a very thin elastic fluid, readily pervading the pores of all bodies, and expanded through every part of space.

Philosophers have always been greatly divided in their opinions, with regard to this subtle fluid; and some have even questioned its existence. The reader, who desires to know the sentiments of the great Sir Isaac Newton, on this head, may consult his optics.

If in two large tall cylindrical vessels of glass inverted, two little thermometers be suspended, so as not to touch the vessels, and these vessels, thus prepared, be carried out of a cold place into a warm one; the thermometer in vacuo will grow warm as much, and almost as soon, as the thermometer, which is not in vacuo; and, when the vessels are carried back into the cold place, the thermometer in vacuo will grow cold almost as soon as the other thermometer. Is not the heat of the warm room conveyed through the vacuum by the vibrations of a much subtler medium than air, which after the air was drawn out remained in the vacuum? And is not this medium the same with that medium by which light is refracted and reflected, and by whose vibrations light communicates heat to bodies, and is put into fits of easy reflection and easy transmission? And do not the vibrations of this medium, in hot bodies, contribute to the intenseness and duration of their heat? And do not hot bodies communicate their heat to contiguous cold ones, by the vibrations of this medium propagated from them into the cold ones? And is not this medium exceedingly more rare and subtle than the air, and exceedingly more elastic and active? And doth it not readily pervade all bodies? And is it not, by its elastic force, expanded through all the heavens?

Is not this medium much rarer within the dense bodies of the sun, stars, planets, and comets, than in the empty celestial spaces between them? And in passing from them to great distances, doth it not grow denser and denser perpetually, and thereby cause the gravity of those great bodies towards one another, and of their parts towards the bodies; every body endeavouring to go from the denser parts of the medium towards the rarer? For if this medium be rarer within the sun's body than at its surface, and rarer there than at the hundredth part of an inch from its body, and rarer there than at the

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fiftieth part of an inch from its body, and rarer there than at the orb of Saturn : I see no reason why the increase of density should stop any where, and not rather be continued through all distances from the sun to Saturn, and beyond. And though this increase of density may at great distances be exceeding slow, yet if the elastic force of this medium be exceeding great, it may suffice to impel bodies from the denser parts of the medium towards the rarer, with all that power which we call gravity : and that the elastic force of this medium is exceeding great, may be gathered from the swiftness of its vibrations. Sounds move about 1140 English feet in a second of a minute of time, and in seven or eight minutes of time, they move about 100 English miles. Light moves from the sun to us in about seven or eight minutes of time, which distance is about 70000000 English miles, supposing the horizontal parallax of the sun to be about 12". And the vibrations or pulses of this medium, that they may cause the alternate fits of easy transmission and easy reflexion, must be swifter than light, and by consequence about 700000 times swifter than sounds ; and therefore the elastic force of this medium, in proportion to its density, must be above 700000 $\times$ 700000 (that is, above 490000000000) times greater than the elastic force of the air is in proportion to its density. For the velocities of the pulses of elastic mediums are, in a subduplicate ratio of the elasticities and the rarities of the mediums, taken together. As attraction is stronger in small magnets than in great ones, in proportion to their bulk ; and gravity is greater in the surfaces of small planets than in those of great ones, in proportion to their bulk ; and small bodies are agitated much more by electric attraction than great ones ; so the smallness of the rays of light may contribute very much to the power of the agent, by which they are refracted. And so, if any one should suppose that æther (like our air) may contain particles which endeavour to recede from one another (for I do not know what this æther is), and that its particles are exceedingly smaller than those of air, or even than those of light, the exceeding smallness of its particles may contribute to the greatness of the force, by which those particles may recede from one another, and thereby make that medium exceedingly more rare and elastic than air, and by consequence exceedingly less able to resist the motions of projectiles, and exceedingly more

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able to press upon gross bodies, by endeavouring to expand itself.

Is not vision performed chiefly by the vibrations of this medium, excited in the bottom of the eye by the rays of light, and propagated through the solid, pellucid and uniform capillamenta of the optic nerves into the place of sensation ? And is not hearing performed by the vibrations either of this or some other medium, excited in the auditory nerves by the tremors of the air, and propagated through the solid, pellucid and uniform capillamenta of those nerves into the place of sensation ? And so of the other senses. Is not animal motion, performed by the vibrations of this medium, excited in the brain by the power of the will, and propagated from thence through the solid, pellucid, and uniform capillamenta of the nerves into the muscles, for contracting and dilating them ? I suppose that the capillamenta of the nerves, are each of them solid and uniform, that the vibrating motion of the ætherial medium may be propagated along them from one end to the other uniformly, and without interruption ; for obstructions in the nerves create palsies. And, that they may be sufficiently uniform, I suppose them to be pellucid when viewed singly, though the reflections in their cylindrical surfaces may make the whole nerve (composed of many capillamenta) appear opaque and white, for opacity arises from reflecting surfaces, such as may disturb and interrupt the motions of this medium.

ÆTHER, in chemistry, a very remarkable fluid, lighter, more volatile, and more inflammable, than the most highly rectified spirit of wine. It quickly flies off when exposed to the air, and suddenly catches fire when any flame approaches it. It burns like spirit of wine, without smoke, and consumes entirely, without leaving the smallest appearance of a coal cinder or of ashes. It dissolves oils and oily matters, with great ease and rapidity. These properties it has in common with an ardent spirit : but it resembles an oil in that it is not miscible with water ; and this makes it essentially different from spirit of wine, the nature of which is to be miscible with all aqueous liquors. Another very singular property of æther is its great affinity with gold, exceeding even that of aqua regis. It does not indeed dissolve gold when in a mass, and in its metalline form : but if a small quantity of æther be added to a solution of gold, in aqua regis, and the whole shaken together, the gold separates from the aqua regis,

regis, joins the æther, and remains dissolved therein. The method of making it may be found in books of chemistry, particularly in a memoir delivered to the Academy of Sciences at Paris, by Mr. Hellot.

ÆTHERIAL, something belonging to, or partaking of the nature of, æther.

ÆTHERIAL Oil, among chemists, a subtile, essential oil, approaching to the nature of spirit.

ÆTHIOPIAN Crown, in natural history, the name of a curious shell, about three inches in length, and two in breadth; of an oval shape. The surface is pretty smooth, and of a pale brownish-yellow. It is brought from Africa and the East-Indies. *Brookes's Natural Hist.*

ÆTHIOPS Mineral, in pharmacy, a preparation of mercury, made by rubbing in a glass, marble, or iron mortar, equal quantities of quick-silver and flowers of sulphur, till the mercury disappears, and the whole becomes a black powder. This is esteemed one of the safest preparations of mercury, greatly used against foulnesses of the skin, in scrophulous cases, and in obstinate venereal cases. It has been long known as a remedy against worms, and is given with great success in that complaint. Its dose is from a scruple to a dram.

ÆTHIOPS of Antimony, a powerful medicine recommended by Dr. Cockburn. It will remove most chronical disorders of the skin; and is of essential service in all kind of obstructions. Also in the king's evil, and most diseases of the glands.

ÆTIANS, in ecclesiastical history, a sect of heretics that appeared during the reign of Constantius, about the year 336. They had their name from one Aetius, a Syrian; who being reduced to poverty set up the trade of a goldsmith; but quitting that employment, applied himself to study, and became a very subtile disputant. Besides the opinions which the Aetians held common with the Arians, they maintained that faith, without works, was sufficient to salvation; and that no sin, however grievous, would be imputed to the faithful. Aetius likewise affirmed, that what God had concealed from the Apostles, he had revealed to him.

ÆTIOLOGY, in physic, is that branch of the healing-art which assigns the causes of diseases.

ÆTTES, the eagle stone, in natural history, a general name for all pebbles or stones of any kind, that have a loose nucleus rattling within. The word is derived from the Greek, and signifieth an eagle; because the ancients supposed it

was found in an eagle's nest. There are a great variety of these stones; but the most valued are those formed from the several varieties of our pebbles. See plate 1. fig. 6. Many virtues have been ascribed to the ættes by the ancients; but they are now considered as fabulous, and accordingly it has now no place in the materia medica.

AFFECTION, in a general sense, an attribute inseparable from its subject. Thus magnitude, figure, weight, weight, &c. are affections of all bodies; and love, fear, hatred, &c. are affections of the mind.

AFFECTION, among physicians, signifies the same as disease. Thus the hysteric affection is the same with the hysteric disease.

AFFEERERS, or **AFFEEERORS**, in law, are persons appointed in court-leets, courts-baron, &c. to settle upon oath the fines proper to be imposed upon those who have been guilty of faults punishable in those courts.

AFFECTUOSO, or **Con AFFECTO**, in Italian music, signifies that the part to which it is added, should be played in a very tender and moving manner.

AFFIANCE, in law, the mutual plighting of troth between a man and woman, to marry each other.

AFFIDAVIT, in law, an oath, in writing, sworn before some magistrate or person properly authorized.

AFFINITY, among civilians, a relation contracted by marriage; in contradistinction to consanguinity, or relation by blood.

AFFINITY, in chemistry, that natural impulse or attraction which various bodies exert towards each other. We will endeavour to display the nature of this universal affection of matter in the following propositions. First, if one substance has any affinity or conformity with another, the two will unite together, and form one compound. Secondly, It is a general rule, that all similar substances have an affinity with each other, and are consequently disposed to unite; as water with water, earth with earth, &c. Thirdly, Substances that unite together lose some of their separate properties; and the compounds resulting from their union partake of the properties of those substances, which serve as their principles. Fourthly, The simpler any substances are, the more perceptible and considerable are their affinities: whence it follows, that the less bodies are compounded, the more difficult it is to analyse them;

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them; that is, to separate from each other the principles of which they consist. Fifthly, If a body consist of two substances, and to this compound be presented a third that has no affinity with one of these two primary substances, but has a greater affinity with the other than those two substances have with each other, there will ensue a decomposition, and a new union; that is, the third substance will separate the two compounding substances from each other, coalesce with that which has an affinity with it, form therewith a new combination, and disengage the other, which will be then left at liberty, and such as it was before it had contracted any union. Sixthly, it sometimes happens, that when a third substance is presented to a body, consisting of two substances, no decomposition follows; but the two compounding substances, without quitting each other, unite with the substance presented to them, and form a combination of three principles: and this happens when that nearly third substance has an equal, or equal, affinity with each of the compounding substances. The same thing may also happen, even when the third substance hath no affinity but with one of the compounding substances only. To produce such an effect, it is sufficient that one of the two compounding substances have, to the third body, a relation equal, or nearly equal, to that which it has to the other compounding substance with which it is already combined. Thence it follows, that two substances, which, when apart from all others, are incapable of contracting any union, may be rendered capable of incorporating together, in some measure, and becoming parts of the same compound, by combining them with a third substance with which each of them has an equal affinity. Seventhly, A body, which of itself cannot decompose a compound consisting of two substances, because they have a greater affinity with each other than it has with either of them, becomes nevertheless capable of separating the two by uniting with one of them, when it is itself combined with another body, having a degree of affinity with that one sufficient to compensate its own deficiency: in that case there are two affinities; and thence ensues a double decomposition and a double combination.

AFFIRMATION, in a general sense, a solemn attestation of the truth of some fact.

AFFIRMATION, among logicians, is an act of the mind, asserting the truth or reality of something; or a positive pro-

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position declaring certain properties or qualities to belong to the thing in question.

AFFIRMATION, in law, an indulgence allowed to the people called Quakers, who, in cases where an oath is required from others, are permitted to make a solemn affirmation that what they say is true; and if they make a false affirmation, they are subject to the penalties of perjury. But this relates only to oaths taken to the government, in law-suits, and on public occasions; for Quakers are not permitted to give their testimony in any criminal case, &c.

AFFIRMATIVE, in a general sense, denotes any thing that implies an affirmation.

AFFIRMATIVE Proposition. See PROPOSITION.

AFFIRMATIVE Sign, in algebra, is marked thus +. See CHARACTER.

AFFORESTING, in our law books, signifies the turning lands into a forest.

AFFRAY, in laws, formerly signified the crime of affrighting, or terrifying; but at present denotes a fight or skirmish between two or more persons.

AFFREIGHTMENT, a term used in some law books, for the freight or hire of a ship.

AFFRONTÉE, in heraldry, is an appellation given to animals facing one another.

AFRICA, one of the four parts, or quarters of the world, is a vast peninsula, it being joined to Asia only by the isthmus of Suez, which separates the Red Sea from the Mediterranean: the sea surrounds it in all other places. It is seated between 10. 40. west, and 50. 0. east longitude, and between 37. 30. of north latitude and 34. 50. south. It is bounded on the north by the Mediterranean sea, and the streights of Gibraltar; on the south by the Southern ocean; on the east by the Indian ocean, the Arabic gulph, and the isthmus of Suez, which separates it from Asia; and on the West by the Western ocean. From north to south it is about four thousand three hundred and twenty miles long, and from east to west four thousand one hundred and fifty broad. It is but lately, that the southern parts of this country have been known; before which the sea-coast, on the northern parts, only was supposed to be inhabited; for the ancients believed the torrid zone destitute of people. At that time, they had penetrated no farther than the deserts of Barca, which are full of burning sands, which made them conclude, that the country still nearer the line must be more unfit

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fit to maintain any inhabitants; but it is now well known, that those parts of Africa which lie immediately under the line are well watered with springs and rivers, and produce a great quantity of fruit and grain, which serve to maintain a vast number of inhabitants. When we consider that the year is divided into two seasons, the rainy and the dry; the rainy season may be compared to winter, and the dry season to summer, but then the spring and autumn are wanting: the winter continues several months, which, with the plentiful dews in the night, are sufficient to render the land fruitful, and, in reality, there is a continual verdure all the year, as well as a continual succession of blossoms and fruit.

Africa is divided into the following states and kingdoms: I. The north division, or coast of Barbary, containing Barca, Tripoly, Tunis, and Algiers. II. The western division, Morocco, Biledulgerid, and Zaara. III. The south-west division, contains Guinea, Benin, Loango, Congo, Angola, Benguela, Mataman, Monomugi, and Monomotopa. IV. The south division includes Caffraria, or the country of the Hottentots, and Terra de Natal. V. The fourth-east division Sofala, and Zanguebar. VI. The north-east division includes Abex and Anian, Abyssinia, or the Upper Ethiopia, Nubia, and Egypt. The interior part of this great continent is still very little known. The principal rivers of Africa are the Niger and the Nile: the Niger, or Niger Nile, said to proceed from the same source as the Nile, we are not so well satisfied about. Some affirm, that the rivers Gambia and Senegal are two branches of the Niger; and others, that they are distinct rivers.

Besides the animals that we have in Europe, Africa produces others not so generally known, as lions, leopards, tigers, panthers, rhinoceroses, elephants, camels, ostriches, camels, dromedaries, monkeys, buffaloes, and wild asses: in the rivers, there are crocodiles and river horses. The most useful of these are the elephant, the camel, and the dromedary. Africa has many islands; on the east are, Madagascar, St. Maurice, Bourbon, and Zocotora. On the west the isles of Madeira, the isles of Cape Verd, the Canary Islands. The isles of Madeira are, Madeira, Porto Santo, and La Deserta. The Cape de Verd islands are, St. Anthony, St. Vincent, St. Lucia, St. Nicholas, St.ago, Sal, Mayo, Del Fuego, Brava, and Bonavista. The Canary islands are, Lancerota, Forteventura, Canaria, Te-

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nerif, Gomera, Ferro, and Palma. There are other islands between this continent and South America, which are reckoned among the African islands, St. Thomas, St. Matthew, St. Helena, Annobon, and Prince's Isle.

AFRICA is represented, in design, by a black woman almost naked, with frizzled, woolly hair, an elephant's trunk for a crest, a lion on one side, and a serpent on the other; decorated with other emblems relating to the produce of the country.

AFT, a naval term, the same with abaft. See ABAFT.

AFTER-BIRTH, in midwifery, the membranes which surround the infant in the womb, generally called the secundines. See DELIVERY.

AFTER-MATH, in husbandry, the grass which springs up after mowing; or the grass cut after the corn.

AFTER-PAINS, in midwifery, excessive pains felt in the groin, loins, &c. after delivery.

AFTER-SWARMS, in the management of bees, are those which leave the hive some time after the first have swarmed.

AGA, among the Turks, a great lord or commander. They sometimes use the word agassi, or agash, instead of aga. Thus they call the aga, or commandant-general of the cavalry, spahilar agassi.

AGAMEMNON, in fabulous history, was the son of Atrius by Ærope. He was king of Argos and Mycene, and general of the Grecian army at the siege of Troy; he was obliged to sacrifice his daughter, Iphigenia, to Diana, and to restore Briseis to Achilles, from whom he had taken her away. He was assassinated by Ægistus, about 1183 years before Christ, as he was entering his dominions; but his death was revenged by his son Orestes.

AGANIPIDES, an appellation given to the Muses from a fountain on mount Helicon called Aganippe.

AGAPE, in ecclesiastical history, the love-feasts, or feasts of charity, used among the primitive Christians, when a liberal contribution was made by the rich to feed the poor. The word is Greek and signifies love. St. Chrysostom gives the following account of this feast. The first Christians had all things in common, as we read in the Acts of the Apostles; but when that equality of possessions ceased, as it did even in the Apostles time, the agape, or love-feast, was substituted in the room of it. Upon certain days, after partaking of the Lord's Supper, they met at a common feast; the rich bringing provisions,

vifions, and the poor, who had nothing, being invited. It was always attended with receiving the Holy Sacrament; but there is some difference between the ancient and modern interpreters as to the circumstance of time; viz. Whether this feast was held before, or after the communion. St. Chryftom is of the latter opinion; the learned Dr. Cave of the former. These love-feasts, during the three first centuries, were held in the church: but at length such abuses were committed at them, that the councils of Laodicea and Carthage prohibited that practice for the future. The modern enthusiasts, we know not how juft, are accused of being amorous at their love-feasts, and that they are more carnally than spiritually minded.

AGARIC, in natural history, a spongy, fungous substance, growing on the trunk of a tree. The tree that produces the agaric is the common larch, from which turpentine is obtained. It grows wild in Dauphiny, Savoy, on the Alps, in Austria, Tartary, &c. and is the only coniferous tree that sheds its leaves in the winter: when it grows old, the fungus comes forth in several places on its trunk, and if the tree is large, on the first branches. The fungus is of various sizes, sometimes not exceeding the bigness of the fist, sometimes as large as a man's head: it takes at least a year to grow to its full size. There are two kinds of it, called by the ancients *mas* and *femina*. The male agaric is dark coloured, hard, heavy, and woody. The female, or officinal agaric, is covered with a hard blackish rind like the other; but when the cortical part is pared off, the internal substance appears quite white: by age, it changes a little yellowish. As agaric is an excrecence from a very resinous tree, it is natural for it to be rich in resin. We find in effect that it contains three fourths of its weight in resinous matter, and that the remaining fourth is slimy, mucilaginous earthy substance, so tenacious as scarce to be by any means dissolved or divided: containing, however, treated with water, a tough gluey paste. The purgative quality of agaric resides in the resin: to the glutinous matter we may attribute the dangerous consequences, which when given in substance, however corrected, it is apt to produce. No wonder that such a cohesive indissoluble substance should adhere pertinaciously to the stomach and intestines, and occasion gripes and other inconveniences.

In reducing agaric to powder, whether by the rasp or the pestle, care must be taken to avoid the fine dust that flies off, which is not only apt to occasion violent sneezing and inflammations of the eyes, but is likewise very prejudicial to the breast. Agaric cannot of itself be pulverized in a mortar, on account of its glutinous substance: the best way of obtaining a powder from it is, first to rasp, and then make it into a paste with mucilage of gum tragacanth; when this is thoroughly dry, great part of it may be beat into fine powder, and by treating the remainder in the same manner, the whole will at length be got through a sieve. It might be supposed, that as it is the mucilaginous part of agaric itself that prevents its pulverization, the addition of fresh mucilage would do more harm than good; but the mucilage of gum tragacanth is of a quite different nature from that of agaric, being soluble, harmless, when dry brittle, and rendering the agaric also pulverable. In some dispensatories, a resinous extract is directed to be prepared from this fungus, by rectified spirit. *Neumann's Chemistry*.

Mineral AGARIC, in natural history, a light marley earth, so called from its resembling, both in colour and in its spongy texture, the vegetable agaric. It is very rarely, if ever, used at present in medicine.

AGARICOIDES, in botany, a sort of small white fungus, with yellowish lamellæ, found frequently in the woods on the bark of old trees.

AGATE, in natural history, a precious stone resembling the onyx, in colour; but has no zones like those wherewith the onyx is decorated: instead of which the agate has lines or spots of various colours, so disposed as to represent the pictures of different objects; as woods, rivers, fruits, flowers, herbs, and clouds, but not very distinctly. The agate differs from the jasper in hardness and smoothness; for though the jasper has the same colours, it is softer, and consists of rougher particles. The white veined agate, with delineations of trees and mosses, is most commonly known by the name of the Mocha stone. It is of a very firm, compact, and fine texture, though found in the shape of a flinty pebble stone. The sizes are various, being sometimes only one, and sometimes eight inches in diameter. The veins of this stone are beautifully disposed in different figures; but there are generally many concentric irregular circles, described from centers placed

placed in various places. They are commonly a little whiter than the ground, though sometimes so faint as scarcely to be seen. Those of this kind are of the highest value, and contain the figures of trees, mosses, sea-plants, and the like. Some have imagined these stones are only petrifications; and that real mosses and sea-plants were included therein: but this is a mistake; for the real objects which they represent were never met with in so diminutive a size as their images represented in these stones. These figures are generally black, or of a dusky colour, and appear with great advantage from the whiteness of the stone. This kind of agate, when it is perfect, is only found in the East-Indies; but there are some of an inferior sort to be met with in Germany. They are called Mocha stones, because they have been brought from the East Indies to Mocha in Arabia, and thence transported into Europe. Some naturalists however, will not allow them to be found in the East-Indies. If this be true, they may be found near the place to which they owe their name; or be brought to Mocha from other parts of Arabia. The dull milky agate is less valuable than the former, though of a very firm texture. They are found in the shape of common flint stones, and are from one inch to ten in diameter. It is nearly of the colour of cream; and, when broken, has a smooth glossy surface. It is more opaque than the former, and yet will bear a very fine polish. This species is common on the shores of the rivers in the East-Indies; and there are some of less value met with in Germany and Bohemia. The lead-coloured agate is of a very fine, firm compact texture; though found, like the former, in the shape of common flint stones, and of as rugged a surface. The ground is of a pale bluish grey, or rather of a dove-colour; and often without variation, though it has sometimes black and sometimes white veins, which are generally near the centre of the stone. This species of agate greatly resembles an onyx, but is certainly a distinct stone. It is very hard, and will bear a fine polish. It is found in the East-Indies, as well as in Germany; where they form these stones into cups and snuff-boxes. The flesh-coloured agate is less valuable than any of the former, though its texture is pretty firm and compact; and its diameter from one to ten inches. The flesh-colour is very faint, and almost whitish. Some of these stones have no veins at all, and others abound

in veins, spots and clouds. The spots are generally very small, notched at the edges. When broken in pieces, it is very smooth and glossy, though not always of the same transparency. It is found in Germany, Bohemia, and Italy; and is worked into various sorts of vessels, and is often made use of instead of gun flints. The blood-coloured agate is, by Boet, called the harmachates, and excels most of this class in beauty. It is always of a deep blood-red colour, sometimes throughout, but more frequently variegated with a pale blue and brown. The blue always surrounds the red, and inclines to the colour of whey; but it is in no other part of the stone. The brown is of the colour of horn, and generally appears in irregular veins; sometimes in such plenty as to make the ground to the stone, and the red with its blue edges only the variegation. This species is not very common, though found in the East-Indies, America, and some parts of Germany. It is chiefly used for the tops of snuff-boxes. The clouded and spotted flesh-coloured agate is, by Boet, called the sandachates, and is of a very fine close texture, though subject to flaws and cracks when the pieces are large: for which reason the lesser stones are most esteemed. It differs from the former species in having a smoother surface; and is generally of a roundish or oblong shape, a little flattened. It has no variegations except a few exceeding small spots, of a beautiful red, variously disposed in different parts of the stone, and in different groupes. In some places it is more transparent than others; and is found in the East and West Indies, as also in Bohemia and Silesia, though not so good. It is, however, very little esteemed at present. The red agate, variegated with yellow, is of the colour of red lead, has a fine pure equal texture, with a smooth regular surface, and is commonly found in the shape of a pebble stone. It is from one inch to four or five in diameter, and its ground of a paler red, decorated with one of deeper colour, disposed in concentric veins from different centers; but this does not appear without close examination. Besides these, it has irregular bright yellow spots, which are never intersected by the veins, but placed either within or without these circles; and always extremely short, being never above a sixth part of an inch in length. This stone is very hard, and will bear a very fine polish. It is found in the East Indies, though not very common. The yellow agate, named, by Boet, the cerachates,

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or the wax-coloured agate, has been found from one to seven inches in diameter, of various shapes and sizes, but all in a very firm compact texture. These stones are sometimes of the same colour throughout: sometimes mixed with irregular veins; and sometimes of a pale and almost white ground, veined and spotted with a strong yellow, exactly resembling that of fine yellow bees-wax. They are all very hard and capable of a fine polish; but differ greatly in degrees of transparency; for some are as transparent as any of the species of agate, and others almost entirely opaque. These stones are found in the East-Indies and America, as also in Germany, though not very good. The pale yellow agate, variegated with white, black, and green, is called by Boet, the *leonina*, from its likeness to a lion's skin, and by the Italians *brocatella*. It is more variegated than the rest of the stones of this kind, and has a fine compact close texture, though in very irregular shapes, with a rugged surface. It sometimes seems to consist of an irregular mass, made up of the abovementioned colours; sometimes distinctly clouded, and sometimes decorated with black and green veins in the form of concentric circles round a centre. The ground is always of a pale yellow, but very differently disposed; sometimes more, sometimes less. In some also, one or more of these colours are wanting, while others contain them all. The green resembles that of the jasper, and the black inclines a little to the brown. It breaks with some difficulty into pieces, with fine smooth surfaces, and is brought from the East-Indies; but, being very scarce, is not commonly known. The blackish veined brown agate has, when found, a pretty smooth surface, though of an irregular shape, and is from two to seven inches in diameter. The brown is very deep and finely clouded, spotted and veined with a colour almost black, while the veins are generally paler and browner than the other variegations. The veins are disposed in irregular concentric circles, and the innermost generally broadest. There have sometimes been vegetable substances found in the middle of this stone, such as the slender roots of moss, or those of crow silk. It is capable of a very high and beautiful polish; and is commonly cut into seals, buttons, heads of canes, knife handles, and the tops of snuff boxes. It is frequently adorned with fictitious colours, which sink so deep into the substance, that they appear like natural veins of the stone, and render it of great

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value. The greenish brown variegated agate seems to be of a middle nature, between agate and jasper. It is a beautiful species, and found in roundish masses, with a smooth even surface, from two to six inches in diameter. Its texture is very firm, and the stone sometimes of the same colour throughout, being only distinguishable from the true jasper by its hardness. But it has most frequently a brownish green ground, variegated with irregular concentric circles, of a red or a finer green: it is also found irregularly clouded and spotted with the same or other colours, as white, flesh-colour, and yellow. It is never entirely transparent in those that are clearest; and is found in different parts of the world, but not equally good; for the European are the worst, they being more coarse, soft, and opaque, than those of the East or West-Indies. *Brooke's Natural Hist.*

AGATE, the name of an instrument used by gold wire-drawers; so called from the agate in the middle of it, which forms its principal part.

AGE, in a general sense, a certain portion, or part of duration, applied to some particular object. Thus we say, the age of the world, or the years that have elapsed since the creation.

AGES of the World. Chronologers have generally divided the age of the world into six principal epochs; but they are not agreed between themselves with regard to the number of years contained in each interval. Those who place the creation six thousand years before the birth of Christ, make the interval between the creation and the deluge to consist of 2262 years; from the deluge to the call of Abraham, 1198; from the call of Abraham to the institution of the Passover, 645; from the institution of the Passover to the beginning of the reign of Saul, 774; from Saul to the publishing of the decree of Cyrus, for the return of the Jews, 583; and from the decree of Cyrus to the birth of Christ, 538. Others who make the age of the world at the birth of Christ only four thousand years, follow the chronology of the Hebrew text, and compute from the creation to the deluge, 1656 years; from the deluge to the call of Abraham, 426; from the call of Abraham to the going out of Egypt, 430; from the going out of Egypt, to the foundation of the temple, 480; from the foundation of the temple to Cyrus, 476; and from Cyrus to the birth of Christ, 532. Others again compute from the creation to the taking of Troy,

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Troy, 2830 years; from the taking of Troy to the foundation of Rome, 420; thence to the destruction of Carthage by Scipio, 602; from the destruction of Carthage to the birth of Christ, 200; from the birth of Christ to Constantine, 312; and thence to the re-establishment of the western empire, 808. So that the interval, according to these chronologers, between the creation and the birth of Christ, is 4052 years.

The learned Mr. Jackson, in his *Chronological Antiquities*, has carefully investigated the different epochs, and shewn the reasons on which his computations are founded. From the creation to the deluge, he says was, 2262 years; from the deluge to the birth of Abraham, 1072; from the birth of Abraham to the exodus, 505; from the exodus to the foundation of the temple, 579; from the foundation to the destruction of the temple by Nebuchadnezzar, 428; from the destruction of the Temple to the decree of Cyrus, 51; and from the decree of Cyrus to the birth of Christ, 535. So that the interval between the creation and the birth of Christ, consists of 5432 years. Some divide the duration of the world into three periods, which they call, the age of the law of nature; the age of the Jewish law; and the age of grace. The first comprehends the time between Adam and Moses; the second the time between Moses and Christ; and the third the years elapsed since the birth of our blessed Saviour. The ancient historians divided the time since the beginning of the world into three periods, which they called ages. The first from the creation to the deluge which happened in Greece during the reign of Ogyges: this they styled the obscure or uncertain age; being the history of mankind, uncertain during that period. The second they named the fabulous, or heroic age: it began at the Ogygian deluge, and extended to the first Olympiad; where, what they called, the historical age commenced.

AGE, among historians, is frequently used to signify a century.

Poetical Ages of the World. The poets have made four ages, which they have distinguished by the epithets of *golden, silver, brazen, and iron.* During the *golden age*, Saturn reigned in heaven, and justice and innocence on earth. The earth then yielded her productions without culture, and streams of milk and honey flowed in every part. The *silver age* commenced when men began to deviate from the paths of virtue, in consequence of which, their lives were rendered less

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happy. The *brazen age* began when the virtue and happiness of mankind were still more diminished; and this gave place to the *iron age*, which commenced when men had deviated still farther from the paths of virtue and happiness.

AGE, denotes a certain period of human life, which is generally divided into four stages; namely, infancy, youth, manhood and old age. The first extends to the fourteenth year; the second to the twenty-fifth; the third to the fiftieth; and the fourth to the end of life.

AGE, in law, certain periods in human life, when persons are enabled to do certain acts, which they are incapable of before. A youth of twelve years of age, may take the oath of allegiance; at fourteen, he may choose his guardian and claim his lands held in socage. Twenty-one is called full age, a man or woman being then capable of acting for themselves, and of managing their own affairs.

AGE of a tree, the time elapsed between its being planted and cut down. The age of a tree may be known by the ligneous circles visible in its trunk, divided horizontally by a saw: for both the trunk and branches of a tree acquire annually an augmentation of a ligneous circle, or a new exterior texture of fibres.

AGE of a Horse, the time elapsed since the animal was foaled. This is easily discovered by his mouth till he is eight years old, when the marks wear out. A horse, like many other creatures of the brute creation, has his teeth divided into three ranks; his fore teeth, which are flat and smooth; his tusks; and his back teeth, called also his jaw-teeth, or grinders, because with these he grinds his provender. They are twenty-four in number, twelve above, and twelve below; strong and double, with sharp edges, till the creature grows old, when they are worn much smoother. The first that grow are his foal-teeth, which begin to appear a few months after he is foaled. They are twelve in number, six above and six below; and are easily distinguished from the teeth that come up afterwards, by their smallness and whiteness, not unlike the fore-teeth of a man. When a colt is about two years and a half old, he casts the four middlemost of his foal-teeth, viz. two above and two below; though some do not cast their foal-teeth till near three years old. The new teeth are easily distinguished from the foal-teeth, being much stronger, and almost twice their size, and are called the nippers or gatherers, being those

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by which the creature nips off the grass when he is feeding abroad in the fields, or, when in the house, gathers his hay from the rack. When a horse has got these four teeth complete, he is reckoned four years old. When he is about three and a half, or in the spring before he is four years old, he casts four more of his foal-teeth, viz. two above and two below, one on each side of the nippers, or middle teeth. When, therefore, you look in a horse's mouth, and see the four middle teeth full grown, and none of the fore-teeth remaining, except the corner teeth, you may conclude he is four years old about April or May: some, indeed, are later colts; but this makes but little difference in the month. The tushes appear about the same time with the last-mentioned teeth, sometimes sooner than these, and sometimes not till the horse is full four years old. They are curved like the tushes of other beasts; in a young horse they have a sharp edge all round the top, and on both sides, the inside being somewhat grooved and flatish, inclined to a hollowness. When horses tushes do not appear till some time after the foal-teeth are cast, and new ones are come in their room, it is generally owing to the foal-teeth having been pulled out before their time by the breeders, or other dealers in horses, in order to make a colt of three years old appear like one of four, that he may be the more saleable; for when any of the foal-teeth are pulled out, the others soon come in their place; but the tushes, having none to precede them, cannot make their appearance before their proper time, viz. when a horse is nearly four years old. One of the surest marks therefore to know a four-year old horse, is by his tushes, which are then but very small, and sharp on the top and edges. When a horse comes five, or rather the spring before he is five, the corner teeth begin to appear, and are at first but just equal with the gums, being filled with flesh in the middle. The tushes are also by this time grown to a more distinct size, though not very large; they also continue rough and sharp on the top and edges. But the corner teeth are now most to be remarked: they differ from the middle teeth in being more fleshy on the inside, and the gums generally look rawish on their first shooting out; whereas the others do not look discoloured. The middle teeth arrive at their full growth in less than three weeks; but the corner teeth grow leisurely, and are seldom much above the gums till the horse is full five: they differ also from the other fore-teeth, in resembling, in

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some measure, a shell; and thence are called the shell-teeth; because they environ the flesh in the middle half way round, and, as they grow, the flesh within disappears, leaving a distinct hollowness and openness on the inside. When a horse is full five, these teeth are generally about the thickness of a crown piece above the gums. From five to five and a half, they grow about a quarter of an inch high; and when a horse is full six, they will be near half an inch above the gums. The corner teeth in the upper jaw fall out before those of the under; so that the upper corner teeth are seen before those below; on the contrary, the tushes in the under jaw come out before those of the upper. When a horse is full six years old, the hollowness on the inside begins visibly to fill up, and that which was at first fleshy, grows into a brownish spot, not unlike the eye of a dried garden-bean, and continues so till he is seven, with only this difference, that the tooth is more filled up and even, and the mark or spot becomes faint, and of a lighter colour. At eight the mark in most horses is quite worn out, though some retain the vestiges of it for a long time; and those who have not had a good deal of experience may sometimes be deceived, and take a horse of nine or ten years old for one of eight. It is only at this time, when a horse is past mark, that we can easily err in knowing the age of a horse; for whatever practices are used to make a young horse look older than he really is, by pulling out the foal-teeth before their time, may be discovered by feeling along the edges where the tushes grow, as they may be felt in the gums before the corner teeth appear; whereas, if the corner teeth become visible some months before the tushes rise in the gums, there is reason to suspect that the foal-teeth have been pulled out at three years old. It will be unnecessary to take particular notice of the tricks used by dealers, in order to make a false mark in a horse's mouth, by hollowing the tooth with a graver, and burning a mark with a small hot iron; because those who are acquainted with the true marks, will easily discover the cheat by the size and colour of the teeth, by the roundness and bluntness of the tushes, by the colour of the false mark, which is generally blacker and more impressed than the true mark, and by many other visible tokens which denote the advanced age of a horse. *Gibson on Horses.*

AGE of the Moon, in astronomy, the number of days elapsed since the last new moon; to find which, add together the epoch,

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Gapst, the day of the current month, and the number for the month; the sum, if it exceeds not 29, is the age of the moon; but if it be more, deduct 29 from it in months which have but 30 days, and 30 in those which have 31 days, the remainder will be the moon's age. See **EPACT**.

The number to be added for each month is as follows: for January 0, February 2, March 1, April 2, May 3, June 4, July 5, August 6, September 8, October 8, November 10, and December 10. At the end of 19 years, the moon's age recurs upon the same day of the month, but falls short of the precise time of the day.

AGENDA, among merchants, a memorandum book, in which all the business to be transacted, both at home and abroad, is set down.

AGENT, in a general sense, any thing that acts and produces an effect.

AGENT, in mechanics and philosophy, a body, or any power in general, which produces or tends to produce any effect by its actual motion, or tendency to motion. See the articles **Power** and **Action**.

AGENT, among merchants, one intrusted with the management of an affair, or who transacts the business of another.

Moral AGENT, a rational creature, capable of regulating his actions by a certain rule.

AGENT and Patient, in law, a person who is at once the doer of a thing, and the party to whom it is done. Thus when a man who is indebted to another, makes his creditor his executor, and dies, the executor may retain so much of the goods of the deceased as will satisfy his debt; by which means he becomes agent and patient; that is, the person who both pays and receives the debt.

AGGLUTINANTS, in pharmacy, a general name for all medicines of a glutinous or viscous nature; which, by adhering to the solids, contribute greatly to repair their loss.

AGGLUTINANTS, among surgeons, topical remedies of a glutinous texture, as the turpentine, farcocolla, isinglass, &c.

AGGRAVATION, the action of heightening a fault, or rendering it more criminal.

AGGREGATE, in a general sense, the sum of several things added together, or the collection of them into one total. Thus natural bodies are the aggregate or assemblages of corpuscles, united together by the principle of attraction; and the aggregate of the several quantities is the sum of these quantities. See **SUM**.

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AGGRESSOR, in law, the person who began the quarrel, or gave the first assault. It is of the utmost importance to know which of the two parties is really the aggressor, and accordingly this matter is strictly enquired into by the court.

* **AGINCOURT** Battle of, in 1415, in the reign of Henry V. Henry finding the passes clear, forded the river between St. Quintin and Peronne, and advancing to Blagny, perceived the whole French army on the march towards Roussauville and Agincourt, which lay in his route to Calais. He now saw his difficulties encrease, and began to repent of the rashness of his conduct. He found himself in the midst of an enemy's country, during the severest season of the year, at the head of an handful of men, exhausted by distemper and fatigue, destitute of provision and proper accommodation, while a prodigious army, amounting to one hundred thousand fighting men, blocked up the passage to the only place where he could expect to find shelter and assistance. In this emergency, he sent a message to the French constable, offering to restore Harfleur, and repair all the damage he had done to the French, nay even to give security that he would never again attempt to invade France, if they would allow him to pass unmolested to Calais. Such was the offer made by the Black Prince, when he found himself surrounded at Poitiers; and the answer which Edward received was the same which they now returned to Henry; they rejected his offer, and proposed that he and his army should submit at discretion. When he treated this proposal with disdain, they sent three heralds to defy him to battle, leaving the time and place to his choice: he replied, that weakened and fatigued as he was, he would not seek an engagement; but as he intended to continue his route to Calais, they might attack him when and where they should think proper to chuse the scene of action. Then they took post between Roussauville and Agincourt, and gave him notice that they would engage him on the twenty-fifth day of October. As he could not possibly avoid an action, he accepted the challenge and presented the herald who brought it with a gratification of a rich robe and two hundred crowns. During this interval of three days, he took all the precautions which the experience of the most able commander could have dictated. He procured for his soldiers such refreshment as the nature of their situation would afford: he ordered their weapons and armour to be refitted and repaired: he invented a kind of sharp stakes for the defence

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sence of the archers: he continued night and day upon horseback, riding through the lines to animate the soldiers, and superintend the economy of the camp: he encouraged the army with hopes of success, by reminding them of the great victories obtained in France by their forefathers; assuring them that the enemy, though numerous, were raw, undisciplined, and imprudent; and he gave them plainly to understand, that they had no resource from death or captivity, but in the extraordinary efforts of their own valour. His affability, activity, and confidence, inspired the soldiers with such resolution and ardour, that far from dreading the number of the foe, they wished eagerly for the battle, and bore their distresses with heroic patience, in hopes of being relieved by a speedy victory. Indeed they seemed to have lost all sense of distinction in numbers; for, on the day that preceded the battle, David Gam, a Welch Captain whom the king had sent to observe the posture of the enemy, being interrogated by his majesty concerning the number of the French army, replied, with great composure, that there are was number enough to be killed, enough root to be taken prisoners, and enough to run away. While Henry thus acted the part of an able and diligent commander, the French officers spent their time in rest and rejoicing. When they considered the handful of English, who did not exceed fourteen thousand enfeebled wretches, half dead, with famine and disease, they looked upon the victory as having already declared in their favour. They are even said to have played at dice for the English prisoners before they were taken, and to have sent orders to the neighbouring villages to prepare lodging for those strangers; on the morning of the engagement, their insolence and presumption rose to such a pitch, that they detached another herald to Henry, to know what he proposed to give for his ransom. This insult he received with the most contemptuous moderation, desiring the messenger to tell those that sent him, a little time would decide to whom the ransom would belong. On the day appointed for the decision of this great contest, both armies were drawn up at break of day in order of battle; and the constable D'Albret, who commanded the French, committed an error which was altogether inexcusable, in chusing a narrow piece of ground, flanked by a rivulet and a thick wood, where he could not extend his front so as to enclose the English; where his cavalry could not act, and his superiority of number, instead of being

an advantage, was an incumbrance and misfortune. He divided his army into three bodies, and he himself commanded the van, accompanied by the dukes of Orleans and Bourbon, the counts of Eu, Vendôme, and Richemont, the famous marshal de Boucicaut, the great master of the cross-bows, the lord Dampierre admiral of France, the dauphin D'Auvergne, and several other officers. The second line was commanded by the duke of Alençon, assisted by the duke of Bar, the counts of Vaudemont, Nevers, Salines, Rouffi, and Grand Pre. At the head of the third body were the counts of Marle, Damponartin, Faquenbergh, and the sieur de Lauroy. While the French were employed in arranging these lines, which stood so thick that the soldiers had not room to use their weapons, Henry concealed four hundred lances in a wood upon the right, and about two hundred and fifty choice archers on the left, in a low meadow covered with bushes. In order to extend his front equal to that of the enemy, he was obliged to form his little army into one line: the right wing commanded by the duke of York, with the lords Beaumont, Willoughby, and Stanhope, was advanced a little way before the center, which the king took under his own conduct, attended by his brother the duke of Gloucester, the earl Marechal, and the young earl of Suffolk, whose father had died at Harfleur. The left, which may be denominated the rear, as it had not advanced so far as the other two divisions was left under the direction of the duke of Exeter, and nothing could be more prudent than this disposition, which was made by the advice of Sir Thomas Erpyngham, a renowned soldier, who acted as Henry's marshal, and was the person who afterwards gave the signal for the attack. The king himself appeared in the front of the line, mounted on a stately white courser, in splendid armour, with a golden crown fixed by way of crest to his helmet; four royal banners were displayed before him; he was followed by a great number of led horses in rich caparisons, and surrounded by the chief officers of the court and army. Whether the French generals were startled at the admirable disposition, and firm countenance of the English, or had received orders to avoid a battle, certain it is, they stood in array, at the distance of two hundred and fifty paces, without proceeding to the attack; and the king of England began to imagine their intention was to starve him into a surrender. This was the wisest course they could have taken; and must have been attended with success,

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had Henry continued inactive; for his provisions were already quite exhausted, and the weather was so rainy that it would have been impracticable to keep the field much longer. Perceiving this drift, and conscious of his own situation, he ordered the archers to strike their stakes, which they planted by way of palisadoes in the front and flank; so that they could advance before and retire behind them occasionally. He rode along the line, exhorting and encouraging the soldiers to behave like Englishmen. Then alighting from his horse, he took his station in the main body, and commanded Sir Thomas Erpingham to throw up his truncheon as the signal for the attack. The whole line raising a loud shout, advanced against the enemy; but Henry fearing they would be out of breath before they could come to close fight, ordered them to halt about mid-way, and there the archers planted their piquets, to secure them from the French cavalry. The battle was begun by a flight of arrows, which did great execution, because the enemy stood so thick that every shaft took place, and even penetrated the armour of the Frenchmen at arms. The English bow-men had advanced beyond their stakes to make this general discharge; but seeing the enemy's cavalry in motion to attack them, they retired within their palisadoes, with admirable order and dexterity, and plied the assailants so warmly and closely, that they began to fall into confusion. The troops that lay in ambush on the right and left, charging them suddenly in flank, completed the disorder: at the same time the archers slinging their bows, rushed out upon them with their battle axes and daggers, and a terrible slaughter ensued. Though this front line of the French consisted of the best troops, animated by the presence and example of so many noblemen, and was commanded by the constable in person, it could not sustain the impetuosity of the attack, and being once disorderd, all opposition was at an end: far from being able to rally, they had not room to turn, and were so encumbered with one another, that they themselves contributed to the victory of the English, who slaughtered them in heaps, until their arms were tired with the works of carnage. Though the constable, with a great number of principal officers, was slain, and the first line of the French entirely routed, the battle continued still undecided; and the second line, commanded by the Duke of Alencon, stood firm and eager to engage. The English

who were fatigued with action, retiring behind the main body, to take breath and form themselves anew, Henry in person led up his division to the charge, and being animated by the success of his first effort, (added to his natural courage and vivacity) performed exploits of valour which equally astonished his own soldiers and those of the enemy. While he thus exerted himself, in a manner that did much more honour to his personal prowess than to his conduct, eighteen French knights, who had engaged in an association to take him dead or alive, made their way sword in hand, to the place where he fought, and one of them stunned him with the blow of his battle-axe, which, however, did not penetrate his helmet. In all probability he would have fallen a sacrifice to the determined resolution of those associates, had not David Gam the Welch Captain, and two other officers of the same nation, rushed between him and the assailants, and lost their lives in his defence. When he recollected his spirits, he found those three gallant soldiers dying of the wounds they had received, and knighted them as they lay upon the field of battle. The eighteen French knights were killed to a man; and Henry still more stimulated by the danger he had escaped, rushed into the midst of the enemy with redoubled impetuosity, until he and his brother Gloucester, who fought by his side, found themselves quite separated from the troops they commanded. In this hazardous situation, Gloucester was felled to the ground by the stroke of a mace; and Henry covering him with his shield, sustained the shock of a whole host of assailants, until the Duke of York came to his relief. At that very instant he received a blow upon the head, that made him stagger and fall upon his knees; but he sprang up in a moment, and laid the aggressor at his feet. His troops inspired by his example to a degree of enthusiasm, rushed forward as one man with irresistible fury, which bore down all before them, and disordered the enemy in such a manner, that all the endeavours of their officers could not reduce them to form, or persuade them to oppose the career of the English. The Duke of Alencon seeing his division in danger of being totally defeated resolved to make one attack that should either restore the battle, or save him the mortification of surviving the disgrace of his country. He put himself at the head of some chosen volunteers, and cutting his way to the spot where Henry

Henry fought, exclaimed that he was the Duke of Alençon; then rushing upon the English monarch, cleft his crown with the first stroke of his sword: he had not an opportunity of repeating the blow; for Henry returned the salutation in such a manner as brought him to the ground; and with his own hand slew two of his followers. He endeavoured to save the life of Alençon; but the guards were so exasperated at his attempt, that they dispatched him immediately, before the king could interpose effectually in his behalf. After the death of this nobleman, the French made no opposition; but either endeavoured to save themselves by flight, or voluntarily offered their throats to the slaughter.

AGIO, in commerce, a term chiefly used in Holland, and at Venice, to signify the difference between the value of bank stock and the current coin. The agio, in Holland, is generally three or four per cent. And at Rome it is from fifteen to twenty-five per cent; but at Venice the agio is fixed at twenty per cent.

AGIO is also used to signify the profit arising from discounting notes, bills of exchange, &c.

AGISTMENT, or AGISTATION, in law, signifies the taking in other people's cattle to graze at so much per week. The term is peculiarly used for taking cattle to feed in the king's forests, as well as from the profits arising from that practice.

AGISTMENT, is likewise used in a metaphorical sense to signify any tax, burden, or charge. Thus the tax levied for repairing the Banks of Romney Marsh, was called agistamentum.

AGISTOR, or AGISTATOR, an officer belonging to forests, who has the care of the cattle taken in to be grazed, and who levies the monies due on that account. They are generally called quest takers, or gift-takers, and are created by letters patent. Each royal forest has four agistors.

AGITATORS, in history, certain officers set up by the army in England, in 1647, to take care of its interests. Cromwell joined the agitators in order to promote his own interests; and accordingly caused them to be abolished as soon as his own power was sufficiently established.

AGNUS *Castus*, or the chaste-tree, in botany, a small tree, or rather shrub, with tough branches, digitated narrow leaves, and monopetalous purplish flowers, standing in spikes on the tops of the branches, followed by oblong whitish seeds. It

is a native of the warmer climates, and cultivated in some of our gardens. The seeds of this plant were formerly considered as antiprophidiacs; experience does not discover in them any such virtue, and some have even ascribed to them an opposite tendency.

But of whatever kind their virtues are, they do not, from their sensible qualities, appear to be very considerable. *Levi's History of the Materia Medica.*

AGNUS DEI, in the Roman church, a cake of wax, stamped with the figure of a lamb supporting a cross. These are consecrated with great solemnity, and then distributed to the people. The words are pure Latin, and signify *lamb of God*; a name given it from the figure impressed upon it.

AGNUS *Scythicus*, the Scythian lamb, in natural history, the name of a fictitious plant, resembling a lamb, supposed to grow in Tartary.

AGON, among the ancients, implied any dispute or contest, whether it had regard to bodily exercises, or the accomplishments of the mind: and therefore poets, musicians, painters, &c. had their agonies, as well as the athletes. Games of this kind were celebrated at most of the pagan festivals, with great solemnity, either annually, or at certain periods of years. Among the latter were celebrated at Athens, the *agon gymnicus*, the *agon nemeus*, instituted by the Argives in the fifty-third Olympiad, and the *agon gympius*, instituted, by Hercules, 430 years before the first Olympiad. The Romans in imitation of the Greeks, instituted contests of this kind. The emperor Aurelian established one under the name of *agon solis* the contest of the sun; Dioclesian another, which he called *agon capitolinus*, which was celebrated every fourth year, after the manner of the Olympic games.

AGON also signified one of the ministers employed in the heathen sacrifices, and whose business it was to strike the victim.

AGONALIA, among the ancient Romans, solemn feasts celebrated in honour of the god Janus, or, according to some, in honour of the god Agonius, whom the Romans always invoked before they undertook any enterprize of importance.

AGONITHETA, in ancient history, the president or magistrate who presided at the sacred games, and adjudged the prizes to the victors.

AGONY, among physicians, extreme pain, or the utmost efforts of nature struggling with a disease.

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* **AGRA**, the capital city of the province of Agra, in Indostan, or Hindostan. It is seated on the river Semina, and is one of the greatest cities of the Indies, being nine miles in length. The houses of the great men are very beautiful and well built; but those of private persons are mean. They stand at a distance from each other, and are hid by the walls which surround them, for fear their women should be seen. The most remarkable things are the palace, and the fine sepulchres near the city. The palace, which is built of stone, is four miles in compass, and is full of ornaments of gold and other precious materials, finely wrought; so that it may be reckoned one of the wonders of the world. The city has eight hundred baths, and seven hundred mosques. The sepulchres about the city, are very fine; and there is not an eunuch of the king's haram, but is very ambitious of rearing a magnificent one; for they commonly amass great riches, and hardly knowing what to do with their money, use it in building sepulchres to preserve their memory. The inhabitants are very numerous, and chiefly Mahometans, though there are a vast number of Pagans, and some reckon twenty-five thousand Christian families. It is a place of great traffic and resort for the Chinese, Persians, and distant inhabitants of India.

AGRARIAN, in a general sense, implies something belonging to or connected with lands. The word is derived from the Latin, *ager*, a field.

AGRARIAN Laws, among the Romans, those laws relating to the division and distribution of lands; and of these there were a great number, but that called the Agrarian law, by way of eminence, was published by Spurius Cassius, about the year of Rome 268, for dividing the conquered lands equally among all the citizens, and limiting the number of acres each citizen might enjoy.

AGREEMENT, in law, the consent of two or more persons to any thing done, or to be done.

AGRICULTURE, in a general sense, implies the art of rendering the earth fertile by tillage and culture.

It is derived from the Latin word, *agricultura*, compounded of *ager*, a field, and *cultus*, to till.

In the most enlightened ages, books of Husbandry were written by men whose exalted station sufficiently indicates the high value then set upon the art they taught. Xenophon, equally distinguished in philosophy and in arms, shews, by his

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commendations of Cyrus, the estimation in which agriculture was held by those great men. Hieron, king of Syracuse, did not think it beneath his dignity to write upon this essential art, for the benefit of his subjects. The chiefs of the two greatest republics in the world, Cato, consul of Rome, and Mago, sates of Carthage, employed part of their time in teaching the art of husbandry. These pieces are, in the opinion of the ancients, the best calculated for explaining rural affairs. Amidst the Asiatic luxury, and that of the Roman empire, valuable treatises of husbandry appeared, written by Attalus, king of Pergamus; by Archelaus, king of Cappadocia; by Valerius Asiaticus, who was judged worthy of the empire, after the death of Caligula; and by the emperor Albinus. Some few fragments of the Greeks are the first rudiments of husbandry upon record; and the elder Cato is the most ancient Latin author whose writings upon this interesting subject have reached our hands. His instructions are very judicious, but too concise. Varro added elegance of language to an improved Treatise of Agriculture; and soon after him, Virgil published his justly admired Georgics; by far the most laboured and highly finished of all his works: these, indeed, he had most at heart; and upon these he chose to rest his future reputation. Columella afterwards collected, with great judgment, whatever was valuable in the writings of his predecessors, and enriched them with his own observations on the subject. His work is one of the choicest remains of antiquity, and has scarcely been equalled by any author since his time. The irruptions of the barbarous nations of the north, unacquainted with the sweets of society, and the blessings of civil liberty, soon abolished improved agriculture. Atoms were their only object. Their meanest slaves were intrusted with their rising husbandry. The improvements made in England, in the reign of Elizabeth, shew, that the protestants, who were obliged to take shelter in the then free states, and particularly in Switzerland, had, with their love of liberty, learned an improved agriculture. In the next age, Marston is not less famed for his knowledge in farming, than for his friendship with Milton. At this period, from which England may date her grandeur, wealth and power, writers of great character undertook the truly patriotic art. Such were Plut, Worslidge, Evelyn, &c. whose works did honour to the age, and proved highly beneficial to their country. In France, two eminent physicians

thought this subject worthy of their pens, and gave their country the *Maisons Rustiques*, a work which, afterwards perfected by a third physician, has undergone numerous editions. Nor does that country now by any means lose sight of this important subject; Duhamel has since published many excellent treatises on husbandry. In Switzerland, a society established at Berne has already favoured the world with such specimens of the great judgment of its illustrious members, as leave no room to doubt but that their distinguished care and assiduity will be a lasting source of advantages to all mankind. The general spirit of improvement in agriculture, so remarkably exerted in the different nations of Europe, calls upon us not to lose that superiority which the happiness of our constitution and climate have given us. The society of improvers in the knowledge of agriculture in Scotland, will ever deserve sincere thanks for many proofs of that truly laudable spirit which consults the general good of mankind. The society in Dublin have distinguished themselves so remarkably by their sound and unbiassed judgment and assiduity, in promoting the real interest of their country, that the parliament of that kingdom are now become their patrons, and have, with a truly public spirit, ordered large sums for carrying into execution their useful designs. Their observations, replete with excellent instructions, want only to be continued and increased. The London society for the encouragement of arts, manufactures, and commerce, is formed upon a plan so universally beneficent, and directed by gentlemen of such high rank, and great abilities, as, when we consider that they actually take every opportunity, which prudence and intelligence can suggest, to promote the lasting welfare of their fellow-citizens, scarcely leaves room for any farther wish, unless it be, that they would impart to the whole world some portion of their treasures of useful knowledge.

It is well known that the real strength of every country depends upon its population; and a little acquaintance with the principles of sound policy will shew, that the only solid basis of a numerous population is agriculture. Without this, the subsistence of a nation is precarious. Uncertainty of subsistence hinders people from marrying, and even induces them to quit their native soil. Husbandmen, whose children are their riches, are of all persons, the fittest and most inclined to propagate their species. Trade, though

a great, is but a secondary, source of wealth, and will, if carried too far, destroy the parent which gave it birth, by diminishing agriculture, depopulating the country, and annihilating, by degrees, that essentially necessary class of men who cultivate the earth. The ease with which the artificers of luxury live, seduces the indigent peasant, draws him to towns and cities, and the country is deserted. But if agriculture be properly countenanced, encouraged, and put in to flourishing a state as to afford a comfortable subsistence to the very great numbers that may be employed in it, the husbandman will not forsake the solid occupation of his forefathers, to which he has been trained up; commerce will not exceed the bounds within which it ought to keep; luxury, that bane of mankind, will be effectually checked; and a martial spirit will animate every free-born youth.

Those who suppose a country life is repugnant to politeness, are surely much mistaken. True politeness, the most cordial affection, the sincerest friendship, and unfeigned courtesy, without the grimace of strained compliments, have often been found among the labouring rural race, inhabitants of cottages.

By proper application to agriculture, the philosopher, from whom we must expect the greatest improvements, will have a pleasing opportunity of gratifying his desire, by enlarging his knowledge of nature: the individual, who puts in practice the discoveries of the philosopher, will find the surest way of increasing his fortune; and the sovereign, who directs and favours the labours of all, will establish his power, independent of all others, upon a foundation which cannot be shaken. Agriculture may be subdivided into three different parts, comprehending the different soils required to be tilled:

1. Arable lands of all kinds.
2. Lands employed in pasturage, whether meadow, marshy, or boggy.
3. Wood-lands, or those laid out in nurseries, plantations, forests, woods, &c. See SAND, CLAY, LOAM, WHEAT, BARLEY, PLOUGHING, SOWING, &c.

AGRIMONY, in botany, the name of a hairy plant; with winged leaves, composed of oblong indented segments, with smaller portions between, set on middle ribs which stand alternately on the stalk: on the top grows a like spike of pentapetalous yellow flowers, followed by little bars, containing, each, one or two seeds. It is perennial, and grows wild in hedges,

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hedges, and about the sides of fields. The leaves of agrimony have a slightly bitterish roughish taste, accompanied with an agreeable, though very weak aromatic flavour. The flowers are, in smell, stronger and more agreeable than the leaves, and in taste somewhat weaker. They readily give out their virtues both to water and to rectified spirit: the leaves impart to the former a greenish yellow; to the latter a deep, green colour: the flowers yield their own deep yellow tincture to both menstrua. In distillation with water, there arises a very small portion of a yellowish essential oil, which smells strongly and agreeably of the herb. Agrimony is one of the milder corroborants; and in this intention is sometimes employed, especially among the common people, against habitual diarrhæas, and cachectic, and other indispositions from a lax state of the solids: infusions of the leaves, which are not ungrateful, may be drank as tea. It is sometimes joined with other ingredients in diet drinks, for purifying the blood; and in pectoral apozems. *Lewis's History of the Materia Medica.*

AGRIMOIDES, in botany, is the name of a genus of plants with roseaceous flowers, growing in some of the mountainous parts of Italy, and agreeing in their medicinal virtues with the agrimony described in the preceding article.

AGRIPPA, a name given by the ancient as well as modern physicians, to children born with their feet foremost. See **DELIVERY**.

AGRIPPINA, the daughter of Germanicus, the sister of Caligula, and the mother of Nero, was extremely beautiful and witty, qualities which she rendered subservient to her debaucheries and ambition. She was thrice married; the last time to the emperor Claudius, her uncle, whom she poisoned, in order to raise Nero to the throne. Being told, that Nero would one time or other put her to death, "No matter," she replied, let "him kill me, provided he does but reign." At length, what had been told her came to pass; Nero sent his guards to stab her; and, as the centurion followed her with his sword in his hand, Agrippina cried, "Strike first this belly, for producing such a monster as Nero!"

AGROSTIOGRAPHY, among naturalists, the history, or description of grasses. Scheuchzer has published a treatise under the title of *Agrostographia*, containing an accurate description of several hundred species of grass.

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AGRYPNIA, among physicians, an inaptitude to sleep, a troublesome symptom of feverish and other disorders.

AGRYPNIA, in the Greek church, the vigil of any of the greater festivals.

AGUAGUIN, in botany, the name of a shrub, whose leaves resemble those of our lilac. It is a native of Africa, where it is greatly esteemed for its balsamic and vulnerary qualities.

AGUE, a general name for all periodical fevers, which, according to the different times of the returns of the feverish paroxysm, are denominated tertian, quartan, and quotidian.

Tertian AGUE, is that which attacks the person every other day.

There is no fever which discovers the nature and genius of the febrile motion in general, and which at the same time infects the vessels and nervous parts, so much as the tertian. It spares neither age, temperament, nor sex. When this species of intermitting fever is of the regular kind it is attended with the following symptoms: at first the head aches, the limbs seem weary, there is a pain in the loins about the first vertebra of the back, and which ascends towards the epigastrium, with a painful sense of a tension in the hypochondria, and a costiveness of the body. This is succeeded by a coldness of the external parts, especially of the nose and ears, a stretching, yawning, shivering, and shaking, sometimes so much as to make the bed tremble under the patient; the pulse is small, contracted, and weak; sometimes the patient is troubled with thirst; then follows a nausea, with a fruitless reaching to vomit; but sometimes a pituitous, bilious, or green matter is brought up, commonly joined with a troublesome cough, and an expectoration of phlegm, derived from the acid, clammy crudities of the stomach; to these succeeds an anxious, burning and dry heat, which pervades the whole body; the face, which was collapsed and pale, the contracted, rigid skin, and the almost empty vessels of the hands and feet, begin to rise, grow red and turgid; the pulse becomes more full and quick, restlessness increases, the breathing is more difficult, and the patient, with his eyes almost closed, begins to talk a little wildly. In some time the symptoms begin to abate, the heat becomes mild, the skin relaxes and becomes moist; the urine is of a flame colour, but without sediment; the pulse is moderate, and then a sweat breaking out, terminates the paroxysm. The duration of the fit is un-

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certain; sometimes it ends in ten or eleven hours, and sometimes not in twenty-four. On the intercalary day, the body is still feeble and coldish, with a disposition to shiver; the pulse is slow and weak; the urine is turbid and deposits a sediment, or there is a nubecula, which shews a disposition thereto.

The bastard, or spurious Tertian AGUE is attended with milder symptoms, the heat is not so burning, the vomiting is not so frequent, and the urine is not so high coloured; but then it is more lingering, and on the intermediate day there is a lassitude and want of appetite. This attacks men of an inactive disposition, and women whose bodies are of a loose texture, in the autumnal season. The fit of the irregular tertian observes no particular time, for it sometimes comes on in the morning, sometimes in the afternoon, in the evening, or at midnight. The paroxysm is sometimes longer, sometimes shorter; the urine lets fall no sediment within the time of remission or intermission; the sweating is either too sparing or too profuse. When the fit is off several remarkable symptoms often appear, as a looseness, a bleeding at the nose, sickness at the stomach, a violent heart-burn, or pains in the belly. These sort of agues are generally epidemic, and most commonly appear in the summer and autumn. Sometimes a tertian ague is double, which may be distinguished from a quotidian, by the time of the fits, which is not the same every day, but every other day.

Continual Tertian AGUE is that which begins with shivering and shaking, an anxiety, vomiting, loss of strength, and then a violent heat. The fits do not intermit, but only remit. The pulse continues frequent with heat and debility, and all the symptoms return with fresh vigour every other day; but at length admit a perfect intermission.

An endemic Tertian AGUE is proper to certain places, of a low situation, and full of marshes, which produce a great number of gnats and other insects, such as some parts of Kent, and the Hundreds of Essex. In such places the natives themselves have slight attacks of it every year, and strangers seldom or never escape without a preservative, which is only the bark infused in brandy, with a little snake-root, two ounces of which are to be taken night and morning.

A Quartan AGUE is that which has two fits in four days, and two days quite free from a fit. It generally begins about

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four or five in the afternoon, though sometimes sooner and sometimes later, with a great lassitude, stretching, a blunt pain in the head, back, loins, and legs: the feet and hands are cold, the whole body is pale, the face and nails livid, and the whole body affected with a shivering and shaking. The tongue and the lips tremble, the breathing is difficult, with restlessness and tossing; the pulse is contracted and hard, and sometimes unequal; and there is an anxiety about the præcordia. These symptoms continue about two or three hours; in some the body is costive, in others there is a stimulus to stool and to make water: in some there is a nausea or vomiting, with stools. Some advanced in years have their minds pretty much disturbed: the heat comes on gradually, not burning but dry; the pulse becomes equal, quick, and large; but the dull pain in the head remains, with a vertiginous affection; the skin becomes a little moist: and in about four or six hours the symptoms vanish, except a dull pain in the bones, joints, and feet. The urine during the fit is sometimes thin and watery, sometimes thick, and deposits a sediment. Sometimes a quartan ague is double, that is when the fits come on every day at different hours; and it is spurious when a paroxysm begins at any other time of the day than that above mentioned. It is said to be continual when on the intercalary days, there are shiverings and pandiculations, with a greater heat than usual, a quicker pulse, a want of appetite, a debility, a dryness of the mouth, a lightness of the head, a disturbed sleep, and a reddish urine, with a thick rose-coloured sediment.

A Quotidian AGUE, or Fever, returns every day, and is not so common as the tertian or quartan. The accession of this fever is about four or five in the morning, with cold and shivering; to which succeeds a cardialgic nausea, and inflation of the belly; in some a pain in the head, in others fainting fits; in most, vomiting or stools, or both: then comes on a moderate heat, with thirst, but not very intense; the pulse, which was before irregular and weak, becomes more quick, but not very hard; the urine is not of a flame, but rather of a citron colour, and turbid. Some are exceeding sleepy. At length a moderate sweat supervenes; and in about ten hours the fit goes off, leaving the body dull and heavy. When this disease varies from the above description, it is then called spurious or anomalous. From these symptoms it appears, that the whole

whole nervous system is exagitated, and suffers greatly by spastic contractions, which, proceeding chiefly from the medulla spinalis, affect preternaturally, not only the coats of the vessels, but all the fibres throughout the body, and thence greatly disturb the motion both of the solids and fluids. The material cause of this, and all other fevers, is a matter of an active nature endued with a caustic acrimony, which solicits the internal and exquisitely sensible parts to spasmodic contractions. It is generated chiefly in the biliary ducts and flexure of the duodenum, where the vitiated, bilious, salival, and pancreatic juices, meeting with the cruditates of a bad digestion, ferment together, and not being timely expelled, become virulent. This matter, passing through the lacteals, into the blood, and thence into the nervous parts of the head, medulla spinalis, intestines, and stomach, as also to the nervous coats of the excretory and secretory ducts, excite an universal spasm, which forces the blood, first to the interior and greater vessels; afterwards the systolic motion of the heart and arteries being increased, the motion of the whole mass of blood and humours is accelerated, the obstructions of the small vessels of the nervous parts are opened; upon which the spasm ceasing, the excretory ducts are relaxed, the febrile matter passes off through the pores of the skin by perspiration or sweat, and the fit ceases, till, by the generation of fresh matter, a new paroxysm is produced. *Hoffman.*

It appears from the experiments of Langrish, that the blood in quotidian is more dense and tenacious than in tertians; and in tertians than in quartans: so that in quotidians, *ex teris patibus*, it comes nearest to an inflammatory state; and it is commonly observed, that if the fever, from a regular tertian, run into a semitercian or quotidian, or greatly anticipates the time of the regular paroxysm, a remitting or continual fever is soon the consequence.

It is necessary to be known, that from February to August, agues are said to be vernal; and from August to February, autumnal; and, that in the beginning of the autumn, they often resemble continual fevers, and require a different manner of cure. No fever emaciates a patient sooner than a tertian, if attended with a more intense and lasting heat. The autumnal and winter agues are obstinate and hard to cure, especially if there be any fault in the viscera: on the

contrary, the vernal and summer agues, if rightly treated, are easily vanquished. Agues, injudiciously managed, terminate in cruel and incurable diseases, as a slow or hectic fever, a sudden swelling of the feet, a dropsy, oedematous tumors, the jaundice, scorbutic cachexy, the dry asthma, the hypochondriac passion; and in infants, a fatal epilepsy. Sydenham observes, that a swelling of the abdomen in children, and of the legs in adults, denotes a solution of the disease; and that a pain in the tonsils, hoarseness, hollow eyes, and a ghastly countenance, portend death. As to the cure, when a load of vitiated humours in the stomach and duodenum require depletion, which is known from having indulged in too plentiful eating, from an anxiety of the precordia, from eructations, and a bitter taste in the mouth, a vomit of ipecacuanha, after the first fit, in the time of intermission, is to be given. If it be an autumnal ague, purging, and an emetic may be convenient to prepare the body for the bark, which is esteemed a sovereign remedy in this distemper; however, it is proper to see two or three fits over before the cure of an autumnal ague be attempted with the bark; in vernal agues less preparation is necessary. If the bark be good, and fresh powdered, six drams, taken in the interval of two fits, are generally sufficient to stop a vernal ague; and an autumnal one will seldom require more than an ounce. But though this quantity may remove the fit for the present, yet the use of the bark must be continued for a considerable time, to prevent a relapse. After the fit is stopped, two or three doses a day for the first week; and once a day for the second week; and then once in three or four days for a month. In weak constitutions, infusions and decoctions of the bark agree better than the substance. Some recommend plaisters and cataplasms; but these are less certain. A diarrhoea prevents the effects of the bark, and therefore should be stopped with all convenient speed. When this distemper is attended with a quincy, or any great inflammations, obstructions, or imposthumes, the bark is dangerous, and ought not to be given before the removal of such symptoms. The cold bath is recommended as one of the last things in the cure of an ague: but this is not to be used in winter, nor by old or weak persons. After all other things have proved unsuccessful, a removal from a cold air to a warmer has performed a cure. *Shaw.*

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AGUL, in botany, the name of a small prickly podded shrub.

AGUARAH, in antiquity, the name of a silver coin struck by the Jews, and otherwise called *gerah* and *kesluta*.

AGUTI, in natural history, an American quadruped, greatly resembling a guinea pig both in size and shape.

AGYNANI, in ecclesiastical history, a sect of heretics that appeared in the seventh century. They condemned all carnal commerce with women, and pretended that God was not the author of marriage.

A-HEAD, in navigation; any distance before a ship, or comprehended on that point of the compass to which she steers, or points her fore-part; as *land a-head*, i. e. land lying immediately in that part of the horizon to which the course or stem is directed.

AHOVAL, in botany, a genus of plants, with a funnel-shaped leaf. Its fruit, which, in some measure, resembles a pair, contains a triangular kernel, and is poisonous.

AID, in a general sense, any kind of assistance given by one person to another.

AID, or **AYDE**, in law, denotes a petition made in court for calling in help from another person who has any interest in the lands, or other things contested.

AID-DE-CAMP, a military term, an officer employed to receive and carry the orders of a general.

AID-MAJOR, a French term for an adjutant. See **ADJUTANT**.

AID, in ancient customs, a subsidy paid by vassals to their lord on particular occasions.

AIDS, in the manage, are the same with what some writers call *cherishing*, and used to avoid the necessity of corrections. The inner heel, inner rein, &c. are called *inner aids*; as the outer heel, outer rein, &c. are termed *outer aids*.

AJAX, in fabulous history, king of Salamis, and son of Telamon, was, next to Achilles, the most valiant general among the Greeks. He fought with Hector, and gave the most signal proofs of his courage; but, transported with fury at the arms of Achilles being adjudged to Ulysses, he rushed furiously among a flock of sheep, and imagining that he was sacrificing the Greeks to his revenge, made a great slaughter; but perceiving his error he pierced himself with the sword he had received from Hector.

AJAX, in fabulous history, the son of Oileus, one of the principal generals at the siege of Troy; and, as his father had very extensive dominions in the country

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of the Locrians, he himself fitted out forty ships for that expedition. Homer represents him as intrepid, swift, and expert at drawing the bow, but without judgment or conduct. After the taking of Troy, he ravished Cassandra, the daughter of Priam, in the temple of Minerva, whither she had fled for sanctuary; on which that goddess punished him, by raising a storm in which he perished.

AIR, in philosophy, is a light, fluid transparent substance, surrounding the earth to a very considerable height. The air is generally esteemed a fluid, though it differs from the general nature of fluids, in three particulars: 1. In being compressible, a property unknown to any other fluid. 2. In being uncongealable, or fixed by any known method, as all other fluids may. 3. In being of a different density in every part, decreasing from the earth's surface upwards; whereas other fluids are of an uniform density throughout. The air is therefore a fluid *sui generis*, if it be properly any fluid at all. That the air was created at first with the earth itself, is not to be doubted; and that there has been ever since a constant generation of particles of air by the mutual action of bodies upon each other, as in fermentations, and all kinds of natural and artificial chemistry. That the air is a heavy or ponderous body, must follow from the nature of the particles of which it consists; and since those particles arise from bodies of every kind known in or upon the earth, the constituent parts of air must be of a very heterogeneous nature, and infinitely various in their specific gravities: whence also it will follow, that as the matter which composes the body of air or atmosphere, is always variable, its weight or gravity will be always different, as we constantly experience by the barometer. See **BAROMETER**.

This spring of the air must render its density always in different altitudes from the earth's surface; for the lower parts of the air, being pressed by the weight of the superior parts, will be made to accede nearer to each other, and the more so as the weight of the incumbent air is greater; and hence it follows, that the density of the air is greatest at the earth's surface, and decreases upwards in geometrical proportion to the altitudes taken in arithmetical progression. See **ATMOSPHERE**.

Since we find, by experience, that the gravity of the air is so various, that one time it will sustain a pillar of mercury 31 inches high, when at another it will raise it but to the height of 28 inches,

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in the barometer; it follows, that we may take $29\frac{1}{2}$ inches of mercury for the mean altitude, and consequently its weight for the mean weight of a pillar of air the same base. But a column of mercury, whose base is one square inch, and altitude $29\frac{1}{2}$, weighs about 15 lb. which is equal to the pressure of air on every square inch; and therefore upon every square foot it will be 2160 lb. and allowing $14\frac{1}{2}$ square feet for the surface of the body of a middle sized man, it must sustain a pressure of 31320 pounds, or 14 tons, when the air is of a mean gravity. This prodigious force would crush us into a very small compass, were it not that it is equal on every part, and counterbalanced by the equal re-action of the spring of the air within us. The weight of the air is proved by a great variety of curious experiments, the principal of which here follow:

1. By actually weighing it in a nice balance, where we shall find that one gallon of air will very nearly weigh a dram.
2. By filling a glass tube with mercury, and inverting it in a basin of the same fluid, where it will appear that a column will be supported in the tube by the sole weight or pressure of the air, to upwards the height of 28 inches.
3. By taking the air off from the surface of the quick silver in the gage of the air-pump, which then immediately rises by the pressure of the external air.
4. By exhausting a receiver placed over the hole of the brass plate on the air-pump, which will then be kept fast on by the pressure of the incumbent air.
- Or, 5. More demonstratively, by exhausting a small receiver under one larger, and letting in the air at once upon it; which will be then fastened to the place as before, tho' not placed over the hole.
6. By placing the hand on the open receiver, and exhausting the weight of the air on the hand will be extremely sensible.
7. By placing a plain piece of glass on the said open receiver, which, when the air is a little exhausted, will be broke into pieces by the weight of the air. A bladder tied over the same glass will be soon broken in same manner. The spring of the air may likewise be demonstrated by various experiments: and it is owing to the pressure and spring of this fluid conjointly, that inspiration and expiration are performed.

Air is a principal cause of the vegetation of plants, an instance of which we have from Mr. Ray, in the Philosophical Transactions, of lettuce-feed that was sown in an exhausted receiver. In eight

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days time there was no appearance of vegetation; whereas some of the same seed that was sown at the same time, in the open air, was risen to the height of an inch and a half in that time; but, the air being let into the exhausted receiver the seed grew up to the height of two or three inches in the space of one week. Air is capable of penetrating the porous and spongy parts of plants, and of being there contracted, and of dilating itself again. The air operates also within the bowels of the earth, and by its subtilty, perspiring through the pores, assists in the rarefaction of the crudities of the earth, and in the dispelling all superfluous moisture, entering into the very pores and veins of the trees, plants, herbs, &c. carrying along with it those salts contained either in itself, or lodged in the earth; which salts or juices are altered according to the figures or dimensions of the different strainers or vessels of those several plants that grow upon the same spot of earth, which is so impregnated with these salts: and thence those varieties in taste and smell proceed, notwithstanding they all receive their nourishment from the same stock that is lodged in the earth. The air also affects the branches, leaves, and flowers of trees, plants, and herbs, entering and perspiring through them, and even through the bark and body of trees; and by the same kind of subtilty, it does, by its refreshing breezes, moderate the intenseness of the sun-beams, cooling, clearing, blowing, opening, and extending all the offspring of nature. The air fixes and insinuates its aereal substance into the liquid sap of vegetables: and, as all the agitations in nature proceed from the contrariety of parts inhabiting together, so these aereal and liquid substances, being mixed, cause the agitation and motion in vegetables, or more properly, set it all into a ferment, whether it be in the roots or the stem; and it rises by co-operation of the sun, which is the third agent in vegetation, up to the top of a tree, &c. as liquids rise by fire to the top of the containing vessel. The air we find produces a vibratory motion in several bodies, and, particularly in plants, the air-vessels thereof perform the office of lungs: for the air contained in them, sometimes contracting, and sometimes expanding, according as the heat is increased or diminished, presses the vessels, and eases them again by turns; and thus promotes a circulation of their juices, which could scarce be otherwise affected.

Air,

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Air, says the learned Dr. Hales, is a fine elastic fluid, with particles of very different natures floating in it, whereby it is admirably fitted by the great Author of Nature, to be the breath or life of vegetables, as well as animals, without which they can no more live nor thrive than animals can. As a proof of the great quantities of air in vegetables, he refers to his third chapter of his excellent Treatise of Vegetable Statics, where, he says, in the experiments on vines, the great quantity of air was visible, which was continually ascending through the sap in the tubes; which manifestly shews what plenty of it is taken in by vegetables, and is perspired off with the sap through the leaves. He adds several experiments, as to an apple-branch, apricot-branch, birch, and other plants, to prove the same thing. And Dr. Grew has observed, that the pores are so large in the trunks of some plants, as in the better sort of thick walking canes, that they are visible to a good eye without a glass; but, with a glass, the cane seems as if stuck at top full of holes, with great pins, so large as very well to resemble the pores of the skin in the ends of the fingers, and ball of the hand. In the leaves of vines they likewise, through a glass, make a very elegant shew, standing almost exactly in rank and file through the length of the leaves: whence it may be thought probable that the air freely enters plants, not only with the principal fund of nourishment by the roots, but also through the surface of their trunks and leaves, especially at night, when they are changed from a perspiring to a strongly imbibing state.

Air also helps to waft or disperse these foggy humid vapours which arise from the soil, and would otherwise stagnate and poison the whole face of the earth. The air, by the assistance of the sun, assumes and sublimates those vapours into the upper regions; and those foggy humid vapours are, by this sublimation, and the coercive power of the air and sun, rarified, and made again useful in vegetation. And, on the contrary, to the benign quality of the air, which is so many ways subservient to vegetables, it is also sometimes, and upon some accounts, injurious and pernicious to them; not only to the ligneous, herbaceous, and flowery parts above, but also to the roots and fibres below: for because the air penetrates into the earth, it is easy to be concluded, that a dry, husky, scorching air, may be very prejudicial to the tender fibres of new

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planted trees. It may be likewise supposed, that all bodies of earth are more or less capable of imbibing the fluid air, and of attracting such salts as either can give, or the earth is capable of receiving.

The air can effect infinite mutations in substances, not only with regard to its mechanical properties, as gravity, density, &c. but also on account of the heterogeneous parts which enter into all substances: as, for example, where there is a great many, the air is impregnated with a biting vitriolic salt, which destroys every thing on the earth round about, and frequently appears on the surface of the ground in a kind of whitish efflorescence. At Fohln, in Sweden, a town famous for its copper mines, which have procured it the name of Copperburg, the mineral exhalations affect the air so sensibly, that the silver and copper money people carry in their pockets, changes colour by the means of it: and Mr. Boyle was informed, by a gentleman of property in those parts, that from the veins of metals and minerals, frequent in that country, columns of a kind of smoke or steam frequently arose, some of which had a very bad scent, others none at all, and some an agreeable one. In Carniole and other places, where there are mines, the air is at some seasons very unhealthy, from whence proceed several epidemical distempers. We shall add, that, about the Cape of Good Hope, the mines of arsenic, which are numerous in that neighbourhood, emit such noxious vapours, that no animal can live, and they were therefore obliged to shut them up again, after having been opened for some time. Dr. Hales has lately contrived a machine, which he calls a ventilator, for evacuating foul air. See VENTILATOR.

AIR, in medicine, is one, and not the least powerful, of the non-naturals; as upon it the very life of animals depends. It is susceptible of different qualities; hot, moist, cold, dry, serene, pure, and temperate. It is subject to variations, more or less sudden, and to be mixed with impure, corrupted, contagious, metallic, sulphureous exhalations, which are all prejudicial to health. The best quality of the air is to be pure and sweet, void of all bad exhalations, neither too hot, cold, dry, nor moist. The sudden changes of the air are inevitable and dangerous; whence proceed a great number of diseases, which reign in the spring and autumn, towards the approach of winter. Hospitals, camps, places where lead is melted, and the earth just thrown up, are generally unhealthy,

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unhealthy, on account of the bad exhalations. Lighted charcoal, in a close place, fills the air with sulphureous particles, which are unwholesome, and sometimes kill the strongest persons. Too hot an air disposes to malignant fevers; if it be without moisture, it produces dry and putrid fevers. Agues are epidemic in the fens of Cambridgeshire, the hundreds of Essex, and in some parts of Kent, on account of the vapours which weaken the fibres of the body, and obstruct the pores of the skin; besides, a cold and moist constitution of the air produces coughs, distillations, and rheumatic pains. Hectic and consumptive people are in great danger, both in very hot and in very cold weather. When the passage through the pores of the skin is stopped by cold, the patient is either apt to fall into a looseness, or to have his legs swelled, and the asthmatic symptoms increased.

AIR, in mythology, was worshipped by the pagans under the names of Jupiter and Juno: the former representing the superior and finer part of the atmosphere, and the latter the inferior and grosser part.

AIR, in painting and sculpture, the manner and very life of action; or, it is that which expresses the disposition of the agent. See the article ACTION.

It is also used to signify the gesture or attitude of a figure.

AIR, in music, the melody proper for songs, odes, &c. being usually quick and lively.

The term is sometimes used to signify the songs themselves, called by the Romans, *ara*, whence the word in this acceptation is derived.

AIRS, in the manage, signify the artificial motions of taught or managed horses, such as the demi-volt, curves, capriole, &c.

AIR-BLADDER, a vesicle found in the bodies of all fishes, except those of the cartilaginous and cetaceous kinds. It is vulgarly called the swim, or swimming bladder. By the assistance of this bladder, which is always more or less replete with air, the fish is enabled to sustain its body at any depth. When the fish is near the bottom, the great weight of the incumbent water compresses its body, or rather the inclosed air-bladder, till the whole fish becomes equiponderant with an equal bulk of water. In the middle of the fluid, where the pressure is less, the air-bladder expands; thereby increases the bulk of the fish, without adding any thing to its weight, till it here also becomes equiponderant with an equal bulk of water: and

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in this manner the air-bladder expands, as the fish rises near the surface, and by that means sustains it at any depth. There is however no doubt but fishes have a power of expanding and compressing the air-bladder, exclusive of the weight of the water, and by that means of rising or sinking at pleasure. Some fishes have only a single air-bladder; some a double one; and in others it is triple, or divided into three cells. Fishes which lie grovelling at the bottom, have no air-bladders; and it is remarkable, that if the air-bladder be either pricked or burst, in fishes naturally furnished with it, they immediately sink to the bottom; from whence they can never rise themselves.

AIR-GUN, a pneumatic machine for exploding bullets, &c. with great violence.

The common air-gun is made of brass, and has two barrels; the inside barrel A (pl. II. fig. 1.) is of a small bore, from whence the bullets are exploded; and a large barrel E C D R on the outside of it. There is a syringe S M N P fixed in the stock of the gun, by which the air is injected into the cavity between the two barrels through the valve E P. The ball K is put down into its place in the same barrel, with the rammer, as in another gun. At S L is another valve, which, being opened by the trigger O, permits the air to come behind the bullet, so as to drive it out with great force. If this valve be opened and shut suddenly, one charge of condensed air may be sufficient for several discharges of bullets; but if the whole air be discharged on one single bullet, it will drive it out with a great force. This discharge is effected by means of a lock (fig. 3.) placed here as usual in other guns; for the trigger being pulled, the cock will go down and drive the lever O (fig. 1.) which will open the valve, and let in the air upon the bullet K.

AIR-JACKET, a sort of jacket made of leather, in which are several bags, or bladders, composed of the same materials, communicating with each other. These are filled with air through a leather tube, having a brass stop-cock accurately ground at the extremity, by which means the air blown in through the tube is confined in the bladders. The jacket must be wet, before the air be blown into the bags, as otherwise it will immediately escape through the pores of the leather. By the help of these bladders, which are placed near the breast, the person is supported in the water, without making the efforts used in swimming; and consequently may save himself, if he has the misfortune of falling

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over-board, &c. See the article **CORK-JACKET**, where the reader will find a comparison between these two inventions.

AIR-PUMP, a pneumatic machine, by which the air contained in a proper vessel may be exhausted. The inventor of this noble instrument was the celebrated Otto de Guericke, a burgomaster of Magdeburg, who performed several experiments on it at Ratibon, before the emperor and several other persons of distinction, in the year 1654. But this instrument was very defective, it requiring the labour of two strong men, for above two hours, to exhaust the air out of glass-vessels, plunged under water. Some time after Mr. Boyle, with the assistance of Dr. Hook, contrived a new air-pump, more commodious and better adapted to experiments than that of the German author, and hence, the instrument was called *Machina Boyleana*.

Several sorts of air-pumps have been from time to time constructed, and several improvements made in this useful machine at different times and by different persons. The following, which is generally in use, was published by Mr. Hawksbee, in the year 1709.

Description of the common AIR-PUMP. This machine is represented on plate II. fig. 2. where A, A, are two brass barrels, in which the pistons C, C, move up and down by means of a cog wheel, which moves on the axis F, when the machine is put in motion by the winch B. G, G, are two pillars, or pieces of wood, supporting the frame of the pump-wheel; which is screwed upon them by nuts under the little pieces of wood E, E. The brass tube, or pipe, marked H, H, is called the swan-neck; by this the air passes from under the receiver O, O, through a small hole K, in the middle of the brass plate I, I, on the top of the pump to a brass piece in the box D, D, which being perforated length-ways, to the middle point, under each barrel, transmits the air through a small hole by a bladder valve, from the receiver to each barrel, to be pumped out by passing through the hole in the descending piston. These holes in the pistons, and bottoms of the barrels, are covered with valves to prevent the return of the air into the receiver. The mercurial gauge, or common barometer, marked L, L, is immersed in a basin of mercury, fixed in the bottom of the frame, and at the top communicates with the receiver, and consequently shews how much the receiver is exhausted by the rising of the mercury in the tube, by a graduated scale fixed to it. Under the frame, below K, is a

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stop-cock communicating with the receiver, by turning which the air will be readmitted. The receiver is ground very true at the bottom, and fixed on the pump by means of wetted leathers, by which the air is effectually excluded.

Description of Mr. Smeaton's AIR-PUMP. This ingenious gentleman has not only obliged the world with an air-pump, far preferable to any machine of that kind hitherto known; but also shewn the reasons on which the imperfections of the common air-pump depend. The reader will therefore, we are persuaded, be pleased to see Mr. Smeaton's observations in his own words.

"The principal causes of imperfection in the common pumps arise, first, from the difficulty in opening the valves at the bottom of the barrels; and, secondly, from the piston's not fitting exactly, when put close down to the bottom, which leaves a lodgment for air, that is not got out of the barrel, and proves of bad effect.

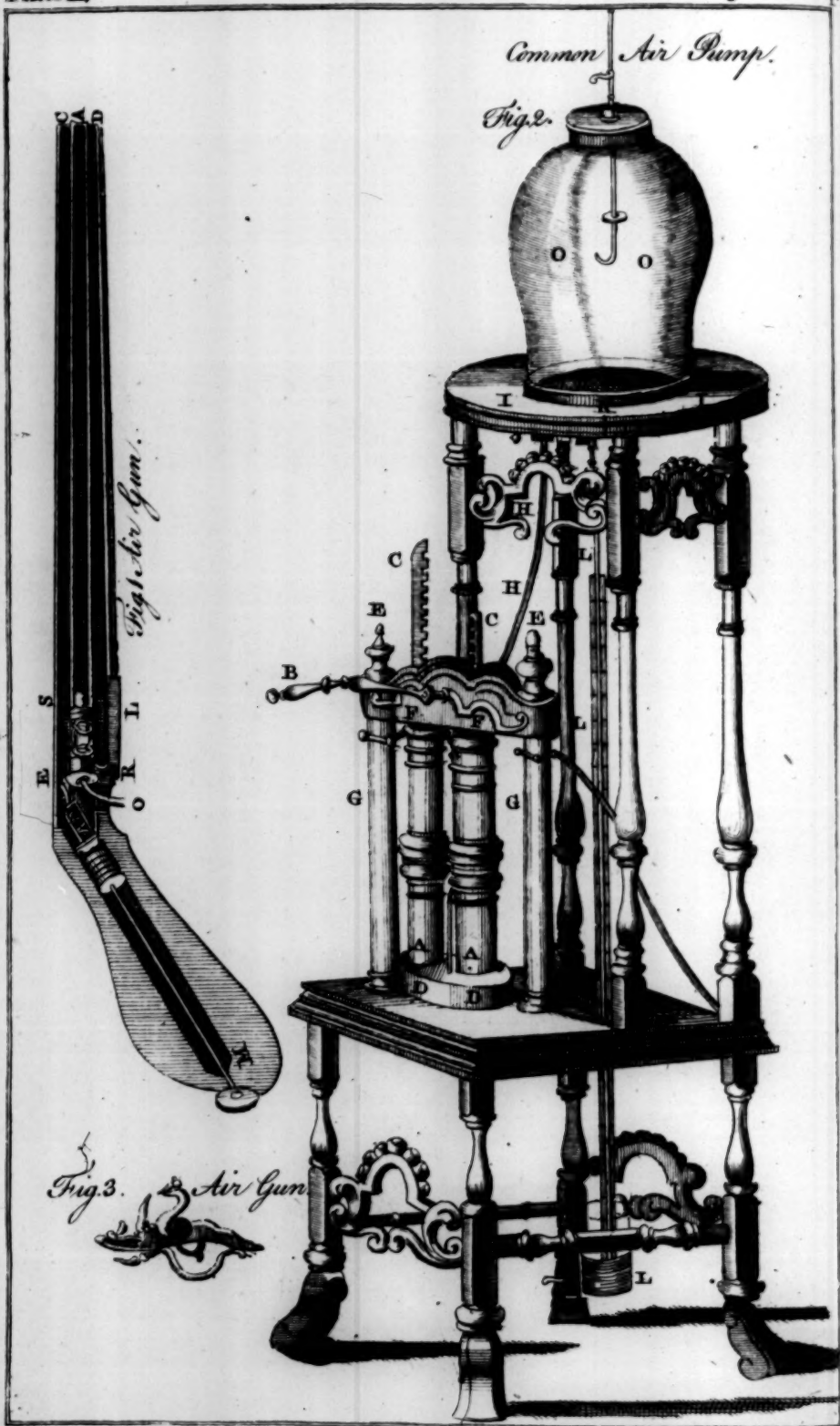
"In regard to the first of these causes, the valves of air-pumps are commonly made of a bit of thin bladder, stretched over a hole generally much less than one tenth of an inch diameter; and to prevent the air from re-passing between the bladder and the plate, upon which it is spread, the valve must always be kept moist with oil or water.

"It is well known, that at each stroke of the pump the air is more and more rarefied, in a certain progression, which would be such, that an equal proportion of the remainder would be taken away, was it not affected by the impediments I have mentioned: so that, when the spring of the air in the receiver becomes so weak, as not to be able to overcome the cohesion of the bladder to the plate, occasioned by the fluid between them, the weight of the bladder, and the resistance that it makes, by being stretched, the rarefaction cannot be carried farther, tho' the pump should still continue to be worked.

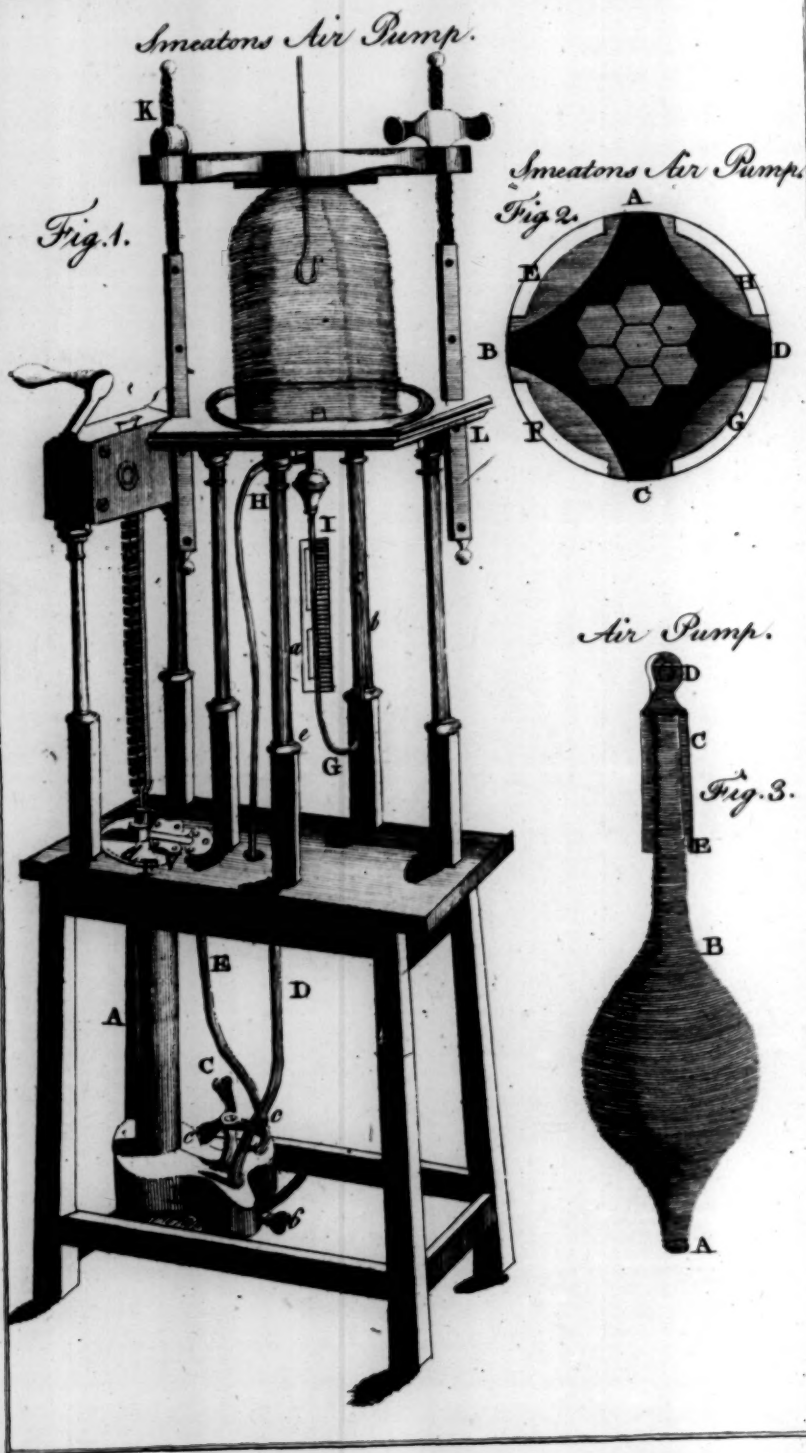
"It is evident, the larger the hole is, over which the bladder is laid, a proportionably greater force is exerted upon it by the included air, in order to lift it up; but the aperture of the hole cannot be made very large, because the pressure of the incumbent air would either burst the valve, or so far force it down into the cavity, as to prevent its lying flat and close upon the plate, which is absolutely necessary.

"To avoid these inconveniences as much as possible, instead of one hole, I have made use of seven, all of equal size and shape; one being in the center, and the









the other six round it: so that the valve is supported at proper distances by a kind of grating, made by the solid parts between these holes: and, to render the points of contact, between the bladder and grating, as few as possible, the holes are made hexagonal, and the partitions filed almost to an edge. As the whole pressure of the atmosphere can never be exerted from this valve, in the construction made use of in this pump, and, as the bladder is fastened in four places instead of two, I have made the breadth of the hexagons three tenths of an inch: so that the surface of each of them is more than nine times greater than common. But as the circumference of each hole is more than three times greater than common, and as the force that holds down the valve, arising from cohesion, is, in the first moment of the air's exerting its force, proportionable to the circumference of the hole; the valve over any of these holes will be raised with three times more ease than common: but as the raising the valve over the center-hole is assisted on all sides by those placed round it, and as they altogether contribute as much to raise the bladder over the center-hole, as the air immediately acting under it, upon this account the valve will be raised with double the ease that we have before supposed, or with a sixth part of the force commonly necessary.

"Plate III. *fig. 1.* is a perspective view of the principal parts of the pump together. A is the barrel. B the cistern, in which are included the cock with several joints. These are covered with water to keep them air-tight. A little cock to let the water out of the cistern, is marked 6. C c c is the triangular handle of the key of the cock; which, by the marks on its arms, shews how it must be turned, that the pump may produce the effect desired. D H is the pipe of communication between the cock and the receiver. E is the pipe that communicates between the cock and valve, on the upper plate of the barrel. F is the upper plate of the pump, which contains the collar of leathers *d*, and V the valve, which is covered by the piece *f*. G I is the siphon gauge, which screws on and off, and is adapted to common purposes. It consists of a glass tube hermetically sealed at *c*, and furnished with quicksilver in each leg; which, before the pump begins to work, lies level in the line *a b*; the space *b c* being filled with air of the common density. When the pump exhausts, the air in *b c* expands, and the quicksilver in the

opposite leg rises, till it becomes a counter-balance to it. Its use is shewn upon the scale *l e*, by which the expansion of the air in the receiver may nearly be judged of. When the pump condenses the quicksilver rises in the other leg, and the degree may be nearly judged of by the contraction of the air in *b c*; marks being placed at *z* and *t* of the length of *b c* from *c*, which shews when the receiver contains double or treble its common quantity.

"Fig. 2. is the plan of the principal valve. A, B, C, D, represents the bladder fastened in four places, and stretched over the seven holes I, K, formed into an hexagonal grating, which I shall call the honey-comb. E, F, G, H, shews where the metal is a little protuberant, to hinder the piston from striking against the bladder.

"Fig. 3. represents the new gauge, which I call the pear gauge. It is open at A; B, C, is the graduated tube, which is hermetically closed at C, as is suspended by the piece of brass D, E, that is hollowed into a cylinder, and clasps the tube."

Theory of the AIR-PUMP. The operations of this machine are accounted for by the elasticity of the air: for when the piston is thrust down to the bottom of its barrel, and then raised up, it is evident that the air, which before was contained in the receiver, will now expand itself, and part of it will enter into the pump barrel: so that the air in the receiver and barrel will have the same density; but this density is to the former as the capacity of the receiver and barrel in one sum, is to the capacity of the receiver alone; it being well known that the density of the air (in the same region) is inversely as the space occupied. See DENSITY.

AIR-SHAFTS, among miners, holes made from the open air to meet the adits, and supply them with fresh air. These air-shafts, when the adits are thirty or forty fathoms in length, become absolutely necessary, in order to let in fresh air, and give vent to the damps and noxious vapours.

AIR-THREADS, in natural history, long filaments, so frequently seen in autumn floating about in the air. These are the work of spiders, especially of that species called the long-legged field-spider; which, having mounted to the summit of a bush or tree, darts from its tail several of these threads, till one is produced capable of supporting the creature in the air; on this it mounts in quest of prey, and frequently rises to a very considerable

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height. Nor does the spider that has thus raised itself descend always by the same thread; it often winds that up, and darts out another, more or less long, as it intends a higher or lower flight.

AIR-VESSLS, in plants, are certain vessels or ducts for imbibing or conveying air to the several parts of the plant.

AIRING, in horsemanship, the exercising a horse in the open air; a practice that cannot be too much commended.

AIRY, or **AERY**, among sportsmen, the nest of a hawk or eagle.

AIUS LOCUTIUS, the name of a deity to whom the Romans erected an altar.

AJUTAGE, or **ADJUTAGE**, in hydraulics, a small pipe fitted to the aperture of a jet-d'eau, or fountain. Experiments have shewn, that a reservoir of 12 feet height above the orifice of an ajutage of three lines diameter, delivers fourteen Paris pints of water in a minute. This may serve as a fundamental rule for fountains, assisted by the following principles. When the height of the reservoirs is the same, and the orifices of the ajutages different, the expence of water is proportional to the squares of the diameters of the ajutages, whence the expence of water, through different ajutages, is thus computed. If 9, the square of 3, gives, by experiment, 14 pints, what will an ajutage of 5 or 6 lines give. The answer is, 39 pints for 5, and 56 pints for 6.

If the expence of two reservoirs, of unequal heights, and different ajutages, be required, proceed by the following rule. The expence of water of two reservoirs, whose heights are different and also their ajutages, are in the compound ratio of the squares of the diameters of the ajutages, and of the subduplicate ratio of the heights. Water spouting upwards, through an ajutage, would ascend to the same height as that of its upper surface in the reservoir, were it not for the resistance of the air, the friction at the sides of the adjutage, and some little impediments at the motion of the water in itself; on account of all which, this height of the rise is always defective. It is found, by experience, that if the direction of the ajutage be a small matter inclined, the water will rise higher than if it be truly upright; and that a polished round hole, in a thin plate of metal, at the top of the pipe, by way of ajutage, will suffer the water to spout higher than when it is cylindrical or conical.

Experience also shews, that the bigness of the pipe of the ajutage should be en-

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larged at and near the surface of the water in the reservoir, and that such pipe should be much larger than the ajutage: also that there is a certain length among the several diameters of the ajutages, which will give the spout the greatest height possible, and which must not exceed an inch and a quarter. Likewise, the height of the spout must have its limits, an hundred feet being almost as much as it will bear.

Let it be observed, 1. That the squares of the quantities flowing out from the same ajutage in equal times, are in the ratio of the heights of the liquid above the aperture.

2. The times in which cylindrical vessels of the same diameter and height are emptied, the liquid flowing from unequal apertures, are in the inverse ratio of the areas of those apertures.

3. Cylindrical vessels of unequal bases, but of equal heights, are emptied through equal apertures in times that are in the ratio of their bases.

4. The times in which any cylindrical vessels are evacuated, are in a ratio compounded of the bases, the inverse ratio of the apertures, and direct ratio of the square roots of the heights.

If the side of a cylindrical vessel, beginning from the base be divided into lengths, which are as 1, 4, 9, 16, &c. viz. the squares of the natural numbers, 1, 2, 3, 4, &c. the surface of the water (running out through an hole or aperture at the bottom) will descend from each of those divisions to the next, in the same time.

In the above investigations, we always suppose the velocity of the effluent water to remain constant during the evacuation; and therefore, when we speak of the time of emptying a cylindrical vessel, we only mean that time in which (the vessel being kept constantly full) a quantity of the liquid, equal in magnitude to the capacity of the vessel, will flow through the ajutage, or aperture, in the side of the perpendicular cylinder.

AJUTANT, in military affairs. See **ADJUTANT**.

AIX LA CHAPELLE, a very fine city of Germany, in the circle of Westphalia, and duchy of Juliers. It is so called, on account of a chapel built by Charlemagne in honour of the Holy Virgin. He having repaired, beautified, and enlarged the city, that was destroyed by the Huns, in the reign of Attila, in 451, he made it the most common place of his residence. There being a great number

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number of reliques in the church of Notre Dame, it is greatly frequented by pilgrims on that account. Although the town is seated in a valley surrounded with mountains and woods, yet the air is very wholesome. It may be divided into the inward and outward city: the inward is encompassed with a wall about three-quarters of a league in circumference, having ten gates; and the outward wall is about a league and a half in circumference, in which there are eleven gates. There are rivulets, which run through the town and keep it very clean, turning several mills; besides twenty public fountains, and many private ones. There are likewise thirty parochial or collegiate churches. The stadt-house is adorned with the statues of all the emperors since Charlemagne. This fabric has three stories, the upper of which is one entire room, of one hundred and sixty-two feet in length, and sixty in breadth. In this, the new-elected emperor formerly entertained all the electors of the empire. It is a free imperial city, and changes its magistracy every year on the eve of St. John Baptist. The mayor is in the nomination of the elector palatine, in the quality of the duke of Juliers, as protector of the city. This place is famous for several councils and treaties of peace concluded here, particularly those between France and Spain in 1668, and between Great-Britain and France in 1748. The baths have been frequented for several centuries, of which some are hot and some warm; the principal are called the Emperor's Bath, the Bath of St. Cornille, the Bath of Roses, the Bath of St. Quirin, the Little Bath, and the Bath of the Poor, besides several others. There are two springs in the lower part of the city, over one of which there is the statue of the Virgin Mary, and over the other that of Charlemagne. These are for drinking; and there are two pumps to raise up the water. There are several galleries or piazzas, under which they walk during the time of drinking, to make them pass more freely. It is about an hundred years since these waters were first taken inwardly, which was owing to a French physician, who wrote a treatise on the virtues of these waters.

About a quarter of a league from Aix, stands the abbey of Borzet, which is a very magnificent pile of building. It was formerly a monastery, but serves for a nunnery, whose abbess is a princess of the empire, and lady of Borzet. The baths here are much hotter than at Aix la Chapelle; and some of them are so hot,

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that they will boil eggs, and if you throw in a dog, he will be killed in an instant. Therefore, here, as well as at Aix, the water must stand till it is of a proper coolness. You may bathe here at fourteen different houses; and there is likewise one open bath, where the poor may bathe gratis. Near this place are several mines of lead, coal, vitriol, and lapis calaminaris. The time of drinking the waters, in the first season, is from the beginning of May to the middle of June; and, in the latter season, from the middle of August to the latter end of September. They are said to be efficacious in almost all tedious chronic diseases, whether internal or of the skin, particularly in all disorders of the nerves, or in all cold diseases, and inward decays.

It is thirty-six miles from Liege, and thirty-two from Cologne. Long. 5. 48. E. Lat. 51. 55. N.

AKAKIA (MARTIN) professor of physic in the university of Paris, was born at Chalons, in Champagne. He was named Sans Malice, i. e. Without Malice; but, according to the custom of that age, he changed it to Akakia, a Greek word of the same meaning. He published a Latin translation of two books of Galen, *De Ratione Curandi*, i. e. Of the method of curing, and illustrated it with a commentary: he also translated Galen's *Arts Medica*. He died in 1551.

AKAKIA (MARTIN) a Parisian, son to the former, and second physician to Henry III. He wrote a Treatise *de Moribus Mulieribus*, and *Consilia Medica*, which were not published till after his death, which happened in 1588.

AKIBA, a famous rabbin, flourished a little after the destruction of Jerusalem by Titus. He kept the flocks of a rich citizen of Jerusalem till the fortieth year of his age, and then applied himself to study in the academies for twenty-four years, and was afterwards one of the greatest masters in Israel, he having twenty-four thousand scholars. He declared for the impostor Barcochebas, whom he owned for the Messiah, and not only anointed him king, but took upon himself the office of his master of the horse; but the troops sent by the emperor Adrian having exterminated this faction, Akiba was taken, and after having his flesh torn and mangled with iron combs, was buffeted to death with a slow fire.

AKISSAT, the ancient Thyatira, a city, in Natolia, in Asia, situated in a plain eighteen miles broad, that produces plenty of cotton and grain. The inhabitants,

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bitants, who are reckoned to be about five thousand, are said to be all Mahomedans, and not one Christian among them, except a few slaves. The houses are built of nothing but earth or turf dried in the sun, and very low and ill contrived. There are six or seven mosques, which are all of marble. They are in no want of water, for there are brooks which run through several of the streets; and the city is well furnished with common provisions. There are remarkable inscriptions on marble in several parts of the town, which are part of the ruins of ancient Thyatira. It is seated on the river Hermes, fifty miles from Pergamos, Long. 28. 30. E. Lat. 38. 50. N.

ALABASTER (WILLIAM) an English divine, born at Hadley, in the county of Suffolk. He was one of the doctors in Trinity-college, in Cambridge, but turned to the Roman communion; however, being soon dissatisfied with his new religion, he again became a Protestant, and obtained a prebend in the cathedral of St. Paul, and after that, the rectory of Therfield, in Hertfordshire. He was well skilled in the Hebrew tongue, and was strangely infatuated with the Caballa. He gave a proof of his fondness for mystical interpretations in the sermon he preached at his taking the degree of doctor of divinity, when he took for his text the words "Adam, Seth, Enos," and endeavoured to prove that each of these words contained a hidden mystery. He wrote a Latin tragedy, intitled *Roxana*, which, when it was acted, in a college at Cambridge, was attended with a remarkable circumstance; for a lady was so terrified at the last words, *Sequitur, sequar*, which were pronounced in a very shocking tone, that, it is said, she lost her senses, and never again recovered them. He wrote a Hebrew Lexicon in folio, and several other works. He was living in 1630.

ALABASTER, *Alabastrites*, in natural history, the name of a genus of fossils, nearly allied to marble. It is an elegant stone of great brightness, and will receive a fine polish, but is brittle. Naturalists enumerate several species of alabaster; as, the snow-white shining alabaster. Boettger informs us, that this stone is extremely white, and found in Taurus in pieces only large enough to make dishes and the like; but it was formerly brought from Arabia. It is not very compact, but heavy, and consists of a multitude of broad flat large particles, which are very bright and perfectly white. It cuts very

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freely, and is capable of a fine polish. There are very large strata of it in Arabia, Egypt, and many parts of Italy.

Whitish yellow alabaster is of a soft consistence, and called, by Boet, the phengites of Pliny, who affirms it was found in Capadocia. It is of a loose open texture, considerably heavy, and nearly of the colour of honey; but the colour is more deep in some places than others. It consists of irregular pieces lying in tables one over another, though with regularity, and altogether compose a remarkably bright and very brittle mass. Besides the places above-mentioned, it has been found in Germany, France, and Derbyshire.

Yellow and reddish variegated alabaster is the common alabaster of the ancients. It is so soft that it may be cut with a knife; and has the same name in all languages. It is remarkably bright, glittering, and almost transparent; and its texture very loose and open, though it is moderately heavy. The ground is of a clear pale yellow, between that of honey and amber, and has the same with crooked undulated veins, some of which are broad, and others narrow; some of a pale red, others whitish, and others again of a very agreeable pale brown. It will bear a very fine polish, and consists of large angular sparry concretions. It was formerly found only in Egypt, but is now met with in many parts of England. *Brooke's Natural Hist.*

ALÆ, in anatomy, is sometimes used for the lobes of the liver, the nymphæ of the female pudendum, the two cartilages which form the nostril, &c.

ALADULIA, a considerable province of Turkey in Asia, in that part called Natolia, between the mountains of Antitaurus, which separates it from Amasia on the north, and from Carimania on the west. It has the Mediterranean Sea on the south; and the Euphrates, or Frat, on the east, divides it from Diarbeker. It comprehends the Lesser Armenia of the ancients and the east part of Cilicia. Formerly it had kings of its own; but the head of the last king was cut off by Selim I. emperor of the Turks, who had conquered the country. It is now divided into two parts: the north, comprehended between Taurus, Antitaurus, and the Euphrates; is a beglerbeglic, which bears the name of Marash, the capital town; and the south, seated between mount Taurus and the Mediterranean, is united to the beglerbeglic of Aleppo. The country is rough, ragged, and mountainous; and

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yet there are good pastures, and plenty of horses and camels. The people are hardy and thievish. The capital is Malatigah.

ALAGNON, one of the principal rivers in the government of Auvergne, in France, which rises at Cantal, and is very rapid; it runs into the Allier.

ALAIS, a town in Languedoc, seated on the river Gardon, is a pretty large, populous, trading city, and has seven gates. Its cathedral is but mean, though it has a portico in the Gothic taste, on which the steeple is raised, and underneath it is the principal gate of the church. The Jesuits had a college in this place; and a fort was built here in 1689.

ALAMODE, in commerce, a very thin, glossy, black silk, chiefly used for women's hoods and men's mourning scarfs.

ALARM, in military affairs the apprehension of being suddenly attacked, or the notice of such an attack, signified by the firing of a cannon, musket or the like. False alarms are frequently made use of to harass the enemy, by keeping them continually under arms.

ALARM-BELL, the bell rung upon any sudden emergency, as a fire, mutiny, approach of an enemy, &c.

ALARM-POST, the place appointed for drawing up a regiment in case of an alarm.

ALARM, a kind of clock, contrived for waking people at a certain hour, by making an uncommon noise, &c.

ALATERNUS, in botany, the name of a distinct genus of plants, according to Tournefort's system; but comprehended by Linnaeus among the rhamnuses.

ALB, or **ALBE**, in the Roman church, a vestment of white linen, hanging down to the feet, and answering to the surplice of our clergy. It was customary in the ancient church for those newly baptized to wear the alb, or white vestment; and hence the Sunday after Easter was called *Dominica in Albis*, on account of the albs worn by those who had been baptized on Easter-day.

ALB, the name of a Turkish coin, otherwise called asper.

ALBANENSES, Christian heretics in the reign of the emperor Constantine VI. and the pontificate of Leo III. about the year 796.

ALBE, a small piece of money, current in Germany, worth about three halfpence.

ALBERTUS, a gold coin of the value of about fourteen shillings; it was coined during the administration of Albertus, archduke of Austria.

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ALBIGENSES, a sect of reformers, about Toulouse and Albigeois, in Languedoc, who sprung up in the 12th century, and distinguished themselves by their opposition to the discipline and ceremonies of the church of Rome. They were likewise called Waldenses.

ALBION, the ancient name of Britain. See **BRITAIN**.

ALBITROSSE, a bird, very common in several parts of the West-Indies; but not reduced to any certain genus.

ALBORAK, among Mahometan writers, the beast on which Mahomet rode in his journey to heaven.

ALBUGINEA Tunica, in anatomy, the third or innermost coat of the testicles, so called from its white colour.

ALBUGO, among physicians, a distemper of the eye, caused by a white, dense, and opaque spot, growing on the tunica cornea. This is a disease, which is more or less offensive to the sight, according to the greater or less portion of the transparent part of the cornea affected by it: for sometimes it fixes on the exterior surface only of this membrane, sometimes on the interior, and sometimes it runs more or less deep into it. It is generally the consequence of inflammations, by the extravasation of humours between the membranes of this tunicle, and particularly in the small-pox, by the suppuration of pustules upon this part.

The learned Dr. Mead, says, I have made use of two methods of cure for this disorder of the sight; the one in the outward fort, the other in the inward. In the former case I ordered the following powder.

"Take of common glass any quantity; pound it in a mortar, into a very fine powder; then add an equal quantity of white sugar-candy, and levigate the mixture on a marble with great labour, till it becomes quite impalpable. A little of this powder, put into the eye with a quill every day, gradually absterges and wears off the spot by its inciding quality. The other method above-mentioned of removing this speck is, to order a dexterous surgeon to pare it cautiously every day with a knife; for this tunicle is composed of several lamellæ one over another, and has thickness enough to bear paring off some of its parts. I have seen several instances of cures by the eye-powder, but the paring of the coat has not succeeded with me above once or twice. However, it is better to try a doubtful remedy than none." *Mead's Medicina & Procepra.*

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The French surgeons scarify the eye for this disease with the bristles or beards of rye-grass; that is, about twenty or twenty-five of them tied together, like a little brush or pencil; and with this they brush the eyes sometimes till a little blood comes, repeating the same every other or third day, four or five times, or more. After the operation, they wash the eye very often with warm water, and at night apply the pulp of a roasted apple.

ALBUM, in antiquity, a kind of table or register, wherein the names of certain magistrates, public transactions, &c. were entered.

ALCAICS, in ancient poetry, a denomination given to several kinds of verse, from *Alcaeus* their inventor.

ALCAID, **ALCAYDE**, or **AL-CALDE**, among the Spaniards and Portuguese, a magistrate, or officer of justice, something like our justice of peace. The *alcald* is properly a Moorish officer, where he is invested with supreme jurisdiction, both in civil and criminal cases.

ALCALI, or **ALKALI**, a general appellation given by physicians and chemists to all substances, which, on being mixed with acids, excite an effervescence. The word originally signified the salt extracted from the ashes of *kali*, or glasswort: but was afterwards applied to all salts that effervesced with acids. Alkalies are generally divided into two kinds, and distinguished by the epithets of *fixed* and *volatile*.

Fixed ALKALIES says *Newman*, are distinguished from saline substances not alkaline, by their effervescing with all acids, forming with them neutral salts, precipitating solutions made in acids, and changing syrup of violets green. They are distinguished from volatile alkalies by their fixity and fusibility in the fire, by their deliquating in the air, and never assuming a crystalline form, changing solution of mercury sublimed not white, but of an orange yellow, producing no blue colour with copper or its solutions, raising no visible cloud when placed near an unstopt bottle of spirit of nitre, occasioning no coldness but rather heat on being dissolved in water. Pure fixed alkalies, dissolved in water, mingle with a solution of any other pure alkali, without the least precipitation, turbidness, or sensible change. Fixed alkalies dissolve sulphur, oils, fats, and resinous bodies. By quick-lime their activity is increased, and in this state they dissolve some metallic substances, as calces or filings of lead, fine filings of copper, copper precipitated from vitriol, the copper in ver-

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digris, tin, and regulus of antimony: this last they corrode into a calx, which, by force of fire, may be melted into an amber-coloured glass. There are two ways of obtaining solutions of iron in these salts: one, by dropping a solution of the metal made in aqua-fortis into a strong alkaline ley, the acid will be absorbed and neutralized by a part of the alkali, and the iron remains dissolved by the rest: the other is, by deflagrating iron filings with nitre, the acid of the nitre will be dissipated in the deflagration, and great part of the iron will dissolve in water along with the remaining alkali. These salts, combined with sulphur, dissolve almost all the metals and semi-metals, gold itself not excepted. When made fluid by a strong fire, they dissolve flint, sand, and other earthy bodies, and on cooling concreate with them into a mass, which proves dissoluble in water, or an indissoluble glass, according as the proportion of the earth is large or small. Added to phlegmatic spirits, either of the inflammable or volatile urinous kind, they imbibe the redundant phlegm, and thus render the spirit more concentrated. In pure vinous spirits they do not dissolve, or only in very small quantity, sufficient however to give a sensible acrimony or alkaline impregnation to the spirit. If both the spirit and the salt are pure, the liquor receives no colour; but if any oily or resinous matter be previously dissolved in the spirit, or if the salt be impregnated, though slightly, with inflammable matter of any kind, a considerably deep tincture will be produced. Fixed alkalies, in general, heighten the colour of vegetable and animal tinctures, whether drawn with water or with spirit; but they commonly vary the taste and often debase the smell of the preparation. They form, with acids, different neutral salts, according to the nature of the acid employed; with the vitriolic, a bitterish salt, very difficult of solution in water, and not fusible in the fire, commonly called vitriolated tartar, the alkaline salt made from tartar being that which has chiefly been employed for these purposes; with the nitrous acid, they form a perfect nitre; with the marine, a salt greatly resembling sea-salt, being in some respects different from the common vegetable alkalies. They readily crystallize with any of the mineral acids, and with tartar; with which last they compose a neutral salt, much easier of solution than the tartar itself, and hence called soluble tartar. They do not easily crystallize with the acid of vinegar or lemon juice; these mixtures, if by careful management reduced to a crystalline

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alkaline form, soon deliquesce again in the air. There are different ways, besides immediate mixture, of obtaining combinations of fixed alkalies with acids, depending upon their great affinities with one another. Thus, when any metallic body is dissolved in an acid, the addition of an alkaline salt precipitates the metal; if the remaining liquor be filtered and evaporated, it leaves a neutral salt, composed solely of the acid and the alkali. Some of the metals suffer a notable alteration in this process: thus the calx of iron, precipitated from the vitriolic acid in making vitriolated tartar, is scarce at all revivable into malleable iron again. When acids are combined with volatile alkalies into ammoniacal salts, and this compound mixed with a fixed alkali, on exposing the mixture to the action of a moderate fire, in a retort or other convenient vessel, the volatile alkali arises and the acid remains combined with the fixed; if it was not for the intervention of the fixed alkali, it would sublime in conjunction with the volatile. In like manner, when sulphur, or oils, or resins, are dissolved by a fixed alkali, the addition of any acid will separate the substance before dissolved, the acid and the alkali uniting together; and even when both of them are previously saturated, the alkali, for instance, with sulphur, and the acid with metal, on mixing the two solutions together, both the sulphur and the metal fall, leaving only the alkali and the acid combined in the liquor. When the alkali is previously combined with one acid, the addition of a more powerful acid will break the union, and disengage the alkali from the first acid. On the neutral salt, composed of fixed alkali and vinegar, pour some spirit of common salt; the acetous acid will instantly begin to exhale, and, on applying a moderate heat, will be totally dissipated, leaving the alkali combined with the marine acid. Add to this combination a due proportion of the nitrous acid, and the marine will be expelled, and a perfect nitre remain. The vitriolic, in like manner, expels the nitrous, and takes possession of the alkali in its place: this being the most powerful acid, is not to be dislodged by any other. When this acid is combined with inflammable matter into sulphur, it loses its great affinity to alkalies. If the neutral salt, composed of the vitriolic acid and fixed alkali, be melted with powdered charcoal, the result is a mixture of alkali and sulphur. On dissolving this compound in water, the slightest even of the vegetable acids precipitates the sulphur, and unites the alkali. *Neumann's Observing.*

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Preparation of fixed ALKALIES. The most commodious method of preparing fixed alkaline salts in the large way, seems to be that directed by Kunckel in his *Art of Glass*. The ashes of wood, or the woody parts of vegetables, either burnt on purpose or as common fuel, are to be put into a large tub or vat, whose bottom is covered with pieces of split wood and straw, to prevent the ashes from stopping up the cock. So much water is to be poured on the ashes as may totally cover them: after standing for a night, the liquor impregnated with their saline part, is to be let off by the cock at the bottom into another vessel; and the elixation repeated with fresh water so long as the ley has any saline taste. The elixated ashes may be used like common wood ashes, for manure; and the weak leys may be rendered stronger, by pouring them, instead of plain water, upon a fresh quantity of ashes. Thus from every parcel of ashes we obtain a strong ley, with a weaker one to be returned on the next. Where the ley is to be kept in its liquid state, wooden vessels (according to him) are more commodious than earthen ones, however glazed; these last being sooner corroded and penetrated by the acid liquor. In procuring a solid salt, the ley is to be evaporated in an iron pan, fixed in brick-work; fresh ley being continually supplied during the evaporation, in a very slender stream, from a cask placed on the brick-work, till the quantity of salt is as large as can be conveniently dried in the vessel. This impure brown or blackish salt is to be calcined, in a furnace built for that use, with a red heat just not strong enough to melt it, and every now and then turned up and stirred for six or seven hours, or till some of the larger pieces, taken out and broke, appear internally white. Thus we obtain an alkali sufficiently pure for all the businesses in which these kinds of salts are employed: if, for particular purposes, a further purification should be required, it may be dissolved, inspissated, and calcined afresh. The rough salt loses, in the first calcinations, commonly about one tenth of its weight. Some soak in the ley a quantity of straw, bean-stalks, or other like substances, sufficient to imbibe it; and, by driving and burning these, obtain the salt of the ley, without the trouble of boiling it down. The earthy matter left by the straw is, in quantity, inconsiderable, and for many purposes, of no injury to the salt, particularly for soap-boiling, bleaching, &c. where the salt is dissolved, and consequently purified from indissoluble earthy admixtures before it is used.

There is nevertheless one great inconvenience in the process; the straw, when loaded with the alkali, being very difficultly made to burn. Vegetable substance in general, when fully impregnated with fixed alkaline salts, never flame; and do not burn at all without a continuance of external heat, inasmuch that some have proposed the impregnating of wood for buildings with salts, as an effectual means for preventing its receiving or communicating fire. The strength of leys, or the quantity of salt dissolved in them, may be estimated by the weight of a certain measure of them, compared to the weight of an equal measure of water; or more commodiously, and perhaps as accurately, by means of an hydrometer graduated from actual trials with leys of known strength. *Neumann's Chemistry.*

Volatile ALKALIES, are salts, formed by a new combination of the constituting particles of a natural body, by the operation of putrefaction. Volatile alkalies from whatever substance obtained, are all alike, and have the same properties; differing only according to their degrees of purity. The volatile alkali, as well as the fixed, consists of a certain quantity of acid, combined with and entangled by a portion of the earth of the mixed body from which it was obtained; and on that account it has many properties like those of a fixed alkali. But there is, moreover, in its composition, a considerable quantity of a fat or oily matter, of which there is none in a fixed alkali; and, by this means, there is a great difference between them. Thus, the volatility of the alkali produced by putrefaction, which is the principal difference between it and the other kind of alkali, whose nature it is to be fixed, must be attributed to the portion of oil which it contains; for there is a certain method of volatilizing fixed alkalies, by means of a fatty substance. Volatile alkalies have a great affinity with acids, unite therewith rapidly and with ebullition, and form with them neutral salts, which shoot into crystals, but differ from one another according to the kind of acid employed in the combination. The neutral salts which have a volatile alkali for their basis are in general called ammoniacal salts. That whose acid is the acid of sea-salt, is called sal ammoniac. As this was the first known, it gave name to all the rest. Great quantities of this salt are made in Egypt, and thence brought to us. They sublime it from the foot of cows-dung, which is the fewel of that country, and contains sea-salt, together with a volatile alkali, or at least the

materials proper for forming it; and consequently all the ingredients that enter into the composition of sal ammoniac. See the Memoirs of the Academy of Sciences. The neutral salts formed by combining the acids of nitre and of vitriol with a volatile alkali are called, after their acids, nitrous sal ammoniac and vitriolic sal ammoniac: the latter, from its inventor, is called Glauber's secret sal ammoniac.

A volatile alkali, then, has the same property as a fixed alkali, with regard to acids; yet they differ in this, that the affinity of the former, with acids, is weaker than that of the latter: and hence it follows, that any sal ammoniac may be decomposed by a fixed alkali, which will lay hold of the acid, and discharge the volatile alkali. A volatile alkali will decompose any neutral salt which has not a fixed alkali for its basis; that is, all such as consist of an acid, combined with an absorbent earth or a metallic substance. By joining with the acids, in which they are dissolved, it disengages the earths or metallic substances, takes their place, and in conjunction with their acids forms ammoniac salts. Hence it might be concluded that, of all substances, next to the phlogiston and the fixed alkalies, volatile alkalies have the greatest affinity with acids in general: yet there is some difficulty in this matter; for absorbent earths and several metallic substances are also capable of decomposing ammoniacal salts, discharging their volatile alkali, and forming new compounds by uniting with their acids. This might induce us to think that these substances have nearly the same affinity with acids. But it is proper to observe, that a volatile alkali decomposes such neutral salts as have for their basis either an absorbent earth or a metallic substance, without the aid of fire; whereas absorbent earths or metallic substances will not decompose an ammoniacal salt, unless they be assisted by a certain degree of heat. Now, as all these matters are extremely fixed, at least in comparison with a volatile alkali, they have the advantage of being able to resist the force of fire, and so of acting in conjunction therewith; and fire greatly promotes the natural action of substances upon one another: whereas the volatile alkali in the ammoniacal salt, being unable to abide the force of fire, is compelled to desert its acid; and that so much the more quickly, as its affinity therewith is considerably weakened by the presence of an earthy or metallic substance, both of which have a great affinity with acids.

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These considerations oblige us to conclude, that volatile alkalies have a somewhat greater affinity than absorbent earths and metallic substances with acids.

Knights of ALCANTARA, a military order of knights in Spain. They make a very considerable figure in the history of the Spanish expeditions against the Moors.

ALCEA, *Vervain Mallow*, in botany, a plant with a woody whitish root, from whence proceed several stalks to the height of about three feet round, full of pith, and thinly beset with longish hair. The leaves that proceed from the root and lower part of the stalks are roundish, with incisions on the edges; but those that grow near the top, and placed alternately, are remarkably jagged, of a blackish green colour, and hairy, particularly on the lower part. The flowers are like those of mallows, and of a purplish flesh colour, though they are sometimes white: they are succeeded by seeds, which are black when ripe, and shaped like those of mallows. The medicinal virtues of this plant are the same with those of mallow. *Brooke's Natural History*.

ALCHEMIST, one who professes, or practises, the art of alchemy.

ALCHEMY, the sublimer, or more abstruse, parts of chemistry. See *CHEMISTRY*.

**ALCIONEUS*, in fabulous history, a giant, who killed twenty-four of the soldiers of Hercules, and was going to knock down Hercules, when he turned aside his club, and killed him on the spot; upon which seven young virgins, who were in love with Alcioneus, and were afflicted at his loss, threw themselves into the sea, and were turned into halcyons.

**ALCITHOE*, in fabulous history, was a Theban lady, who contemning Bacchus, and his orgia, was spinning at home, while the other women were solemnizing his festival; on which Bacchus, being incensed, transformed her into a bat, and her spindle and flax into a vine and ivy.

**ALCMENA*, in fabulous history, the daughter of Eleftryo, king of Mycenæ, and wife of Amphytrion, being beloved by Jupiter, he assumed the form of her husband, and was admitted to the liberties of the marriage-bed, and made the night last as long as three ordinary ones. From this embrace sprung Hercules.

**ALCMEON*, in fabulous history, the son of Amphiaraus and Eryphile: he slew his mother in obedience to the command of his father, who looked upon her as the cause of his death: after which, Alcmeon, being haunted by furies, retired

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to Psophis, in Arcadia, where he expiated his crime, and married Arsinoe, the daughter of Phegeus; but afterwards, marrying Callirrhoe, the daughter of Achelous, and giving her a necklace, which he had taken from his mother and given to his other wife, Achelous ordered his two sons to pursue and kill him.

ALCOA Arbor, a tree found in St. Helena, the wood of which resembles the ebony; but is uncertain to what genus it belongs.

ALCOHOL, in chemistry, spirit of wine rectified by repeated distillations, till it has acquired the utmost subtilty and perfection possible. By these repeated rectifications, it is freed from its redundant phlegm, and from some particles of acid and oil, which, though much less volatile than itself, ascends with it in the first distillation; nor is it possible wholly to avoid this inconvenience. See *SPIRIT*. Alcohol also signifies a very fine impalpable powder. The oriental ladies use antimony, reduced to an impalpable powder, for blacking their eye-lids, and call this powder alcohol.

ALCORON, *AL-CORAN*, or *AL-KORAN*, the scripture, or bible of the Mahometans. It is compounded of the Arabic particle *al*, and *coran*, or *kuran*, derived from the verb *caraa*, or *karaa*, to read: the true sense of the word is, *the reading*, or that which ought to be read.

The alcoran is divided into 114 large portions, of very unequal length, which we call chapters, but the Arabians *suras*, which properly signifies a row, or series. These in the manuscript copies, are not distinguished by their numerical order, but by particular titles, which are sometimes taken from some principal matter treated of, but generally from the first word of note that occurs. Every chapter is subdivided into smaller portions, which we usually call verses, but the Arabians *aiat*, which signifies signs and wonders; such are the secrets of God, his attributes, works, &c. delivered in those verses.

The alcoran is written in the purest and most elegant language, and is allowed to be the standard of the Arabic tongue. The style is, in general, beautiful and fluent. It is concise and often obscure, adorned with bold figures after the Eastern manner, enlivened with florid and sententious expressions, and in many places, especially where the majesty and attributes of God are described, sublime and magnificent. The design of the alcoran was, to unite the professors of the three different religions then followed in the popu-

ous country of Arabia, who, for the most part, lived promiscuously, the far greater number being Pagans, and the rest Jews and Christians. To effect this, Mahomet pretended to be the ambassador of God, who, after the repeated admonitions, promises, and threatenings of former ages, had sent him to establish the true religion upon earth by force of arms, and appointed him chief pontiff in spiritual, and supreme prince in temporal affairs.

It is beyond dispute that Mahomet was really the chief contriver of the alcoran; though it is probable, that he had assistance in his design from others; particularly from one Sergius, a Nestorian monk, and a Jew named Abdallah Ebn Salam. The Mahomedans, however deny that the alcoran was composed either by their prophet himself, or any other person; it being their orthodox belief, that it is not only of divine original, but even eternal and uncreated, remaining, as some of them express it, in the very essence of God; that the first transcript has been from everlasting by God's throne, written on a table of vast bigness; that a copy from this table, in one volume on paper, was, by the ministry of the angel Gabriel, sent down to the lowest heaven in the mouth of Ramadan, whence Gabriel revealed it by parcels, some at Mecca, and some at Medina, at different times during the space of twenty years, as the exigency of affairs required; giving Mahomet, however, the satisfaction of seeing the whole once a year. They add, that this original copy was bound in silk, adorned with gold and precious stones of Paradise.

This book is held in the highest esteem and reverence among the Mahometans. They dare not so much as touch it without being legally purified. They read it with great attention and respect, never holding it below their girdles. They swear by it, consult it on the most weighty occasions, carry it with them to war, write sentences of it in their banners, adorn it with gold and precious stones, and, knowingly, do not permit it to be in the possession of any of a different persuasion or faith.

ALCOVE, among builders, a recess, or part of a chamber, separated by an estade, or partition of columns, and other corresponding ornaments, in which either a bed of state is placed, or seats to entertain company.

ALDEBARAN, in astronomy, a star of the first magnitude, called the Bull's-eye, as making the eye of the constellation

Taurus. Its longitude is 6 deg. 32 min. 0 sec. of Gemini, and its latitude 5 deg. 29 min. 49 sec. south.

ALDER-TREE, *Alnus*, in botany, the name of a genus of trees whose characters are these: the flower is of the amentaceous kind, being composed of several apices, arising from four-leaved cups; these are affixed in a clustering manner to an axis, but these are barren. The young fruit appears in a different part of the tree, it is of a squamose structure, and loaded with embryo seeds; this finally increases in size, and becomes a regular fruit, containing a number of compressed seeds. *Miller's Dict.*

There are eight species of this plant enumerated by botanical authors; but the common alder is generally meant by that name. There is a peculiar beneficial property belonging to this plant, for no beast will crop it; which saves the great charge of fencing it after planting. Their propagation is the same as the poplar, and, where the place is too wet for that, the alder will flourish and become large trees, pollards, or poles for hedges; in short, there is none of the aquatic tribe will raise more money and sooner than the alder, in wet meadow hedges, and in boggy, moorish ground, nor make stronger and quicker fences. This aquatic thrives but indifferently when raised from truncheons, or from the wild set or sucker, which it produces but few of. But there is a way to do this much more to the purpose; first, prepare a bed of well-manured fine mould, then lay the full ripe seed at a due distance from the fire, or in the sun, and it will cause them to open like the fir pine-apple; then sow the seeds in the bed, and you will have abundance of young plants, that on setting out will be sure to grow, if rightly managed: at Midsummer cut away the small side-shoots of this tree, which will prevent the second growth; but if they are large, you must not do it, because it will then make the sap run out too much, and damage the tree. This is of great consequence; for, by so doing, the large side-arms are prevented in their growth, which often causes knobs and wens that lessen the value of their wood. *Ellis's Timber Tree Improved.*

ALDERMAN, from earlderman, Saxon, the second degree of nobility among the Anglo-Saxons, and now the second degree in cities or corporations. The word signifies a senior, or alderman, which, by degrees, came to stand for persons of the greatest distinction, because such were chosen to discharge the highest offices, and

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and as they were generally intrusted with the government of the counties, instead of saying the governor, it was said the earldorman of such a county; and by degrees this word came to signify the governor of a country, or city. While the heptarchy lasted, these officers were only during the king's pleasure; at last they were generally for life. After the Danes were settled in England, the earldorman was changed into that of earl, and the Normans introduced that of count, which, though different in its original signification, meant the same dignity. At this time aldermen are associates to the Mayor, or civil magistrates of most of our municipal or corporate cities or towns, who form a kind of council, and regulate matters according to the policy of the place: sometimes they also take cognizance of civil and criminal matters, but very rarely, and in particular cases: their number is not limited, being in some places six, and others twenty-six, out of which are annually chosen the mayors, or chief magistrates, who, at the expiration of their mayoralty, devolve again into aldermen. An alderman should be an inhabitant of the place, and resident where he is chose; and if he removes, he is incapable of doing his duty in the government of the place, for which he may be disfranchised. There are, however, frequent instances, wherein aldermen of London reside at a distance from the city: and at this day an alderman of London resides at Enfield, who hardly ever attends city business; but either from lenity or inattention in the citizens, he is not disfranchised.

***ALDERNEY**, an island in the British channel, separated from Cape La Hogue, in Normandy, by a narrow straight, called the Race of Alderney, which is a dangerous passage, on account of the hidden rocks in it. It is a healthy island, has but one church, and is fruitful both in corn and pasture. The inhabitants live together in a town of the same name, for their greater safety, the island being but eight miles in circumference. The number of houses are said to be two hundred, and the inhabitants a thousand. It has but one harbour, called Crabby, which is at a distance from the town, and is only fit for small vessels. To the west lie the range of rocks, called the Caskets, so dangerous to mariners. Long. 2. 17. W. Lat. 49. 50. N.

ALE, a fermented liquor from an infusion of malt, and differing only from beer in having a less proportion of hops. See **BREWING** and **FERMENTATION**.

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There are various sorts of ale, particularly pale and brown; the former is brewed from malt slightly dried, and is esteemed more viscid than the latter, which is made from malt more highly dried or roasted.

Medicated ALES, are those wherein medicinal herbs have been infused, or added during the fermentation.

Gill ALE, is that wherein the dried leaves of ground-ivy have been infused. It is esteemed abiterative and vulnerary, and consequently good in disorders of the breast and obstructions of the viscera.

ALE-CONNER, an officer in the city of London, who inspects the measures used in public houses. There are four ale-conners, who are all chose by the liverymen of the city.

* **ALECTRYO**, in pagan mythology, a youth so much esteemed by Mars, that he entrusted him with his secrets, and particularly his adultery with Venus; but setting him to watch the door, to prevent their being surprised by the sun, Alectryo fell asleep, and the lovers were discovered; Mars was so exasperated, that he changed him into a cock, which still remembering the effects of its drowsiness, watches the sun so strictly as to give notice of its first approach.

ALEMBIC, a chemical vessel usually made of glass or copper, for condensing the vapours that rise in distillation; for the alembicis properly the head or upper part of the apparatus used in distilling; though it is often used to signify the whole. See **STILL** and **DISTILLATION**.

ALEPH, the name of the first letter in the Hebrew alphabet, from which the *alpha* of the Syrians and Greeks was formed. The modern Jews use their letters as cyphers, Aleph stands for one; Beth for two; Gimel for three, &c.

* **ALEPPO**, the metropolis of Syria, is built on eight small eminences, on the highest of which the castle is erected. This mount is of a conic form, and seems in a great measure to be raised with the earth thrown up out of a deep broad ditch, which surrounds it. The suburbs to the north-north-east are next in height to this, and those to the west-south-west are much lower than the parts adjacent, and than any other part of the city. It is about three miles and a half in circumference, but the suburbs eight miles. The houses consist of a ground floor, generally arched; of an upper story which is flat on the top, and either terraced with hard plaster, or paved with stone: The apartments are placed on each side of a stone court;

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court; the ceilings are of wood neatly painted, and sometimes gilt, as are also the window shutters, the pannels of some of their rooms, and the cup-board doors, of which they have a great number. These taken together, have a very agreeable effect. Over the doors and windows, on the inside, are written passages out of the Koran, or verses of their own composition. The court yard is neatly paved, and has generally a basin, with a jet d'eau in the middle, on one or both sides of which a small spot of a yard or two square is left unpaved for a garden. The verdure, the flowers in pots, and the playing of fountains, produce a very agreeable effect, but they can only be seen by those within, for the passage into the street is closed with double doors, so contrived, that there is no looking in when the doors are opened; besides, there are no windows to the street, except a very few in the upper rooms, which render the streets very disagreeable to Europeans.

The better sort of houses have an arched alcove in the court, open to the north, and opposite to the fountain. The divan is that part of a room in a Turkish house raised above the floor, and is covered with a carpet in winter, and in summer with fine mats. Along the sides are thick mattresses, about three feet wide, and commonly covered with scarlet cloth. There are likewise large bolsters of brocade, stuffed with cotton, set against the walls to lean upon: On these they set cross-legged, for they have no chairs. People of fashion have but one or two rooms below stairs, for themselves, in the outer court, the rest are for the servants and stabling.

The mosques in Aleppo are numerous, and some few of them magnificent. Before each of them is an area, with a fountain in the middle, designed for ablutions before prayers, and behind some of the larger there are little gardens.

The bazars or market places are long covered narrow streets, on each side of which are a great number of small shops, just sufficient to hold the tradesman and his goods, the buyer being obliged to stand without. Each separate branch of business has a particular bazar, which is locked up as well as the streets, an hour and a half after sun-set: but the locks are of wood, though the doors are cased with iron. The slaughter-houses are in the suburbs, open to the fields. The tanners have a khan to work in near the river. The city is supplied with good water from springs, near the banks of the

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river Heylen, about five miles to the north-east, which is conveyed from thence by an aqueduct, and distributed all over the town by earthen pipes. This is sufficient for drinking, cookery, &c. but the fountains are supplied by wells of brackish water, of which there is one in every house. Their fuel is wood and charcoal in the house; but they heat their bagnios with the dung of animals, leaves of plants, parings of fruit, and the like.

The seasons are so regular, and the air so healthy, pure, and free from damps, that all the inhabitants sup and sleep in the court-yards, or on the house tops, from the end of May to the middle of September. The severity of the winter continues only from the 12th of December to the 20th of January, when the air is excessively piercing; and yet the ice is seldom strong enough to bear a man, and the snow very seldom lies above a day. Narcissuses, hyacinths, and violets, blow during this weather. In February the fields are clothed with an agreeable verdure, to which the springing up of their latter grain greatly contributes. The almond tree blossoms in February, and the trees begin to have leaves the beginning of March. During this month and April, nature assumes a gay and delightful appearance; but before the end of May all the fields are parched and barren; only some robust plants are capable of withstanding the heat. From this time there is no rain till about the middle of September, when a little generally falls, which refreshes the air, and bestows a more agreeable aspect to the country.

The number of souls in the city and suburbs is computed at about two hundred and thirty-five thousand, of whom two hundred thousand are Turks, thirty thousand Christians, and five thousand Jews. The common language is the vulgar Arabic, but the Turks of condition use the Turkish. Aleppo is 70 miles east of Scanderoun, on the sea-coast, and 175 north-by-east of Damascus. Long. 37. 40. E. Lat. 36. 12. N.

*ALEXANDER THE GREAT, the son of Philip, king of Macedon, and Olympia, was born at Pella, three hundred and fifty-six years before the Christian era. In his youth, he broke the famous horse called Bucephalus; which no other person dared to ride, saved the life of his father in battle, became the admiration of the most experienced commanders, and gained the affection of the people by his good offices and liberality. Having succeeded his father when twenty years of age, he conquered

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conquered Thrace and Illyrium, destroyed Thebes, and at the taking of that city, preserved Pindar's house and family, on account of his poems. He then declared war against the Persians, forced the passage of the Granicus, subdued, with surprising rapidity, Lydia, Ionia, Caria, Pamphilia, and Cappadocia. At length, he defeated the army of Darius near the Issus, took his treasures, and made a great number of prisoners, among which were the mother, the wife, the son and two daughters of that unfortunate prince. The victory of the Issus was followed by the reduction of many important cities and provinces. After the taking of Tyre, he marched against the Jews, with whom he was offended; but Jaddus, their high-priest, meeting him, and shewing him the book of Daniel, where it was written, that a Grecian prince would destroy the empire of the Persians, he obtained of him whatever he asked. At last, having defeated king Porus, and extended his conquests even into India, he died at Babylon, either by poison or a drunken debauch, aged thirty-two, three hundred and twenty-four years before the Christian æra. He would never suffer more than three men to represent his person, Praxiteles in sculpture, Lyfippus in casting figures, and Apelles in painting.

ALEXANDRINE, in poetry, a kind of verse, consisting of thirteen syllables alternately; so called from a poem on the Life of Alexander, written in this kind of verse by some French poet.

ALEXIPHARMICS, in medicine, remedies for expelling or preventing the ill effects of poison: but some of the moderns having imagined that the animal spirits, in acute distempers, were affected by a malignant poison, the term has been understood to mean medicines adapted to expel this poison by the cutaneous pores, in the form of sweat. In this sense, alexipharmics are the same as sudorifics.

The most active sudorifics, or alexipharmics, seldom find a place in medicine, and are to be administered with singular caution: for a sweat never rises in a healthful and natural state, unless the blood is put into an extraordinary motion; nor, when this happens, is it a sign of health, like insensible perspiration, the matter of which is void of acrimony, watery, resembling the nutritious juices, and almost destitute of taste or smell, differing very much from sweat, which is of a salt taste, a fætid smell, and approaches the nature of urine. Besides, the sudorifics excite a great commotion, and notable orgasm; for they act

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not with moderation, but rapidity; whence it comes to pass, that in bodies replete with blood, or contaminated serum, by impelling the fluids with too much violence to the small and narrow vessels, they bring on dangerous and acute symptoms, occasioned by the inflammation and redundancy of humours. But they are particularly hurtful, where the primæ viæ are obstructed by a load of vitious humours, where the body is costive, and when they are administered immediately after a violent fit of anger. *Hoffman.*

* ALFRED, son of Ethelwolf, was born at Wantage in Berkshire; came to the crown of England in 871; took London from the Danes, besieged Rochester, and drove them to their ships in 882; founded a body of laws, and died in 900; and was succeeded by his second son Edward the elder.

ALGA, in botany, a genus of submarine plants, called in English, grass-wreck, and composed of long slender leaves of a dusky-green colour, very much resembling some kinds of grass. Authors mention several species of alga, the most considerable of which is the alga-marina, so much used in the glass trade.

ALGEBRA, a general method of resolving problems by means of equations.

It is probable that the Indians or Arabians first invented this noble art; for it may reasonably be supposed, that the ancient Greeks were ignorant of it, because Pappus, in his *Mathematical Collections*, where he enumerates their analysis, makes no mention of any thing like it; and besides, speaks of a local problem, began by Euclid, and continued by Apollonius, which none of them could fully resolve, though doubtless they might easily have done, had they known any thing of algebra. Diaphantus was the first Greek writer of algebra, who published thirteen books about the year 800, though only six of them were translated into Latin, by Xylander, in 1575; and afterwards, viz. anno 1621 in Greek and Latin by M. Bachet and Fermat, with additions of their own. This algebra of Diaphantus's only extends to the solution of arithmetical indeterminate problems. Before this translation of Diaphantus came out, Lucas Pacciolus, or Lucas de Burgo, a minorite friar, published at Venice, in the year 1494, an Italian Treatise of Algebra. After him, came Scipio Ferreus, Cardan, Tartaglia, and some others, who reached as far as the solution of some cubic equations. Bombelli followed these, and went a little farther. At last came Nunnius,

Nennius, Ramus, Schoner, Salignac, Clavius, &c. who all of them took different courses, but none of them went beyond quadratics.

In 1590, Viota entered upon the stage, and introduced what he called his *Specious Arithmetic*, which consists in denoting the quantities, both known and unknown, by symbols or letters. He also introduced an ingenious method of extracting the roots of equations, by approximations, since greatly improved and facilitated by Raphson, Halley, Simpson, and others.

Des Cartes's rule for constructing cubic and biquadratic equations, was farther improved by Thomas Baker, in his *Clavis Geometrica Catholica*, published in 1684. In the year 1708 algebra was applied to the laws of chance and gaming by R. de Montmort: and since by De Moivre and James Bernoulli.

The elements of algebra were compiled and published by Kersey in 1671, wherein the specious arithmetic, and the nature of equations, are largely explained, and illustrated by variety of examples: the whole substance of Diaphantus is here delivered, and many things added concerning mathematical composition and resolution, from Ghetaldus. The like has been since done by Prestet in 1694, and by Ozanam in 1703; but these authors omit the application of algebra to geometry, which defect is supplied by Guisnee in a French Treatise expressly on the subject, published in 1704; and l'Hopital, in his *Analytical Treatise of the Conic sections*, in 1707. The rules of algebra are also compendiously delivered by Sir Isaac Newton, in his *Arithmetica Universalis*, first published in 1707, which abounds in select examples, and contains several rules and methods invented by the author.

Algebra is of two kinds, *numeral* and *literal*.

Numeral, or *Vulgar ALGEBRA*, is that of the ancients, which only had place in the resolution of arithmetical questions. In this, the quantity sought is represented by some letter or character; but all the given quantities are expressed by numbers.

Literal, or *Specious ALGEBRA*, or the *New ALGEBRA*, is that wherein the given or known quantities, as well as the unknown, are all expressed or represented by their species, or letters of the alphabet.

By this the memory and imagination are eased of that vast stress or effort required to keep several matters, necessary for the discovery of the truth in hand, present to the mind. Specious algebra is not, like the numeral, confined to certain kind of problems; but serves universally for the

investigation or invention of theorems, as well as the solution and demonstration of all kinds of problems, both arithmetical and geometrical. The letters used in algebra, each separately represent either lines or numbers, as the problem is arithmetical or geometrical; and together, they represent planes, solids, and powers, more or less high, as the letters are in a greater or less number: for instance, if there be two letters, a b , they represent a rectangle, whose two sides are expressed, one by the letter a , and the other by b ; so that by their mutual multiplication they produce the plane a b . When the same letter is repeated twice, as a a , they denote a square. Three letters a b c , represent a solid, or a rectangle parallelepiped, whose three dimensions are expressed by the three letters a , b , c , the length by a , the breadth by b , and the depth by c ; so that by their mutual multiplication they produce the solid a b c . As the multiplication of dimensions is expressed by the multiplication of letters, and as the number of those may be so great as to become inconvenient, the method is, only to write down the root, and on the right hand to write the index of the power, that is, the number of letters whereof the power to be expressed does consist; as a^2 , a^3 , a^4 , a^5 ; the last of which signifies as much as a , multiplied five times into itself; and so of the rest. See the articles CHARACTER, and QUANTITY. See also ADDITION, SUBTRACTION, and MULTIPLICATION.

ALGEBRA has also been applied to the consideration and calculus of infinites; from whence a new and extensive branch of knowledge has arisen, called the Doctrine of Fluxions. See FLUXIONS.

ALGEBRAICAL, something that relates to algebra. Thus we say, algebraical characters, curves, solutions, &c.

ALGEBRAICAL Curve, a curve wherein the relation of the abscisses to the ordinates may be defined by an algebraical equation. These are also called geometrical lines, or curves. Algebraical curves stand contradistinguished to mechanical or transcendental curves.

ALGEBRAIST, one who is skilled in the science of algebra.

ALGENEB, a fixed star of the second magnitude, in Perseus's right side.

* ALGIERS, one of the states of Barbary in Africa. It has the Mediterranean Sea on the north, mount Atlas on the south, which separates it from Biledulgerid, the kingdom of Fez on the west, and that of Tunis on the east. It is about six hundred and sixty miles in length, but in

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breadth not half so much. It is governed by a dey, under whom each province has a bey; but it may more properly be called a republic of soldiers under the protection of the Sultan of the Turks. In this province there are a great many ruins of towns and castles built by the Romans. The inhabitants of the mountains are divided into several tribes, who are often at variance among themselves, and yet will unite against the Turks, and are able to raise an army of forty thousand men. Their only weapons are javelins and arrows. The country about Algiers, the capital city, is very beautiful, and produces plenty of all sorts of pulse, fruit and flowers. It yields a charming prospect, being diversified with rising hills and pleasant vales, which never lose their verdure; for there is not only a constant supply of young grass, but the trees are full of leaves all the year, which is owing to the coolness of the soil, it being always well watered, inasmuch that neither the heat of the summer nor the coolness of winter can ever strip them of their green livery. There are a multitude of vines of a surprising beauty, which are exceeding fruitful, and often form a kind of natural arbor. The trees begin to blossom in February, and in May and June the fruit is ripe. For a dozen miles about Algiers there is a plain terminated by a mountain, in which there are said to be twenty thousand gardens; there are many without houses, but only huts made with the branches of trees. Beyond the mountain there is another beautiful plain, well watered, and very fruitful, being near thirty miles in length. It is called the plain of Mattejar, and corruptly Muteejah. It produces a crop twice, and sometimes thrice a year. Near the sea, there are barren spots, thick woods, and venomous reptiles. The fields and gardens are not inclosed with walls, but with Barbary fig-trees, which take root from a leaf that becomes the trunk of the tree, and the leaves which proceed from thence become branches. They are of very quick growth, and being prickly, make excellent hedges, which, being continually green, have a very fine effect. The rind of the fruit is very thick, and not good to eat. Orange, citron, and other fruit trees are in great plenty, but the fruit is not very tempting, because they never cultivate the trees, but leave every thing to nature. When women of fashion go into the country, they sit cross-legged upon a saddle made fit for that purpose, inclosed in a large covering with gauze or twiggs woven together, covered with fine white clear

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linen, and open at the top; through this inclosure they can see and not be seen.

* **ALGIERS**, a city, the capital of the above kingdom, built on the declivity of a hill by the sea-side, in the form of an amphitheatre. The streets are so narrow, that they will scarce admit two persons to walk a-breast, and the middle part is lower than the sides. When any loaded beasts, such as camels, horses, mules, or asses, pass along, you are forced to stand up close to the wall to let them pass by. There is but one broad-street, which runs through the city from east to west, in which are the shops of the principal merchants, the market for corn and other commodities. There are said to be about one hundred thousand inhabitants in the city, comprehending five thousand Jewish families, besides Christians.

They have no physicians among them, for they take no internal remedies, they say it is tempting God. One of the deys might have been cured of a fever by a ingenious French surgeon who was his slave; but he refused it, saying the number of his days was appointed from all eternity. Long. 3. 30. E. Lat. 36. 40. N.

ALGOL, a fixed star of the third magnitude, called Medusa's Head, in the constellation Perseus.

ALIAS, a second or further writ issued from the courts of Westminster, after a capias, &c. sued out without effect.

ALIBI, in law, implies the absence of the accused party; or as being at a distance from the place where the fact was committed, at the time mentioned in the indictment. The word is Latin, and signifies elsewhere.

ALIEN, in law, one born in a strange country, not within the king's allegiance, in contra-distinction to a denizen, or natural subject. An alien is incapable of inheriting lands in England, till naturalized by act of parliament. No alien can vote at the election of members of parliament; nor enjoy any office, or be returned on any jury, unless where an alien is party in a cause, when the inquest is composed of an equal number of denizens and aliens. The reasons for establishing these laws were, that every man is presumed to bear faith and love to that prince and country where he received protection during his infancy; and that one prince might not settle spies in another's country; but chiefly that the rents and revenues of the country might not be drawn to the subjects of another. It has been thought that the laws against aliens were introduced in the time of Henry II. when a law was made at the parlia-

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ment of Wallingford, for the expulsion of strangers, in order to drive away the Flemings and Picards, introduced into the kingdom by the wars of king Stephen. Others have imagined that the original of this law was more ancient; and that it is an original branch of the feudal law; for by that law no man can purchase any lands but he must be obliged to do fealty to the lords of whom the lands are holden; so that an alien that owned a previous faith to another prince, could not take an oath of fidelity in another sovereign's dominions. *Cunningham's Law Dict.*

ALIEN-DUTY, an impost on all goods imported by aliens, over and above the duty for such goods imported by British subjects, and on British bottoms.

ALIENATION, in law, the act of making over a person's property in lands, tenements, &c. to another.

ALIMENT, in a general sense, whatever contributes to the nourishment of an animal or vegetable body.

ALIMENT, among physicians, whatever is capable of nourishing an animal body. The loss which we sustain daily makes it necessary that it should be repaired by substances analogous to those of our body, such as aliment and drink; the stimulus to which is hunger and thirst; wherefore it is necessary to know in general their kinds and principal qualities, in order to make a proper choice. Solid Aliments are taken from seeds, fruits, leaves, stalks, and roots; of all which the seed is the most laboured, and contains a mealy and milky substance; from whence a soft oil may be drawn, friendly to human bodies.

The principal aliment is bread, which is made of wheat, rye, barley, and Turkey corn. That of wheat is most nourishing; barley is dry, and rye is laxative. The crust is easiest of digestion. The other farinaceous substances are beans, pease, and lentils, which nourish much, but are heavy, windy, and viscous; and consequently, by constant use are apt to cause obstructions.

Rice, barley, and oats, properly prepared, are moistening, emollient, and restorative. Nuts, almonds, and chefnuts, are full of nourishing oil, but are hard of digestion.

Fruits which are pulpy and tart, abound with water, and are refreshing, moistening, and sedative; appeasing the too rapid motion of the blood, quenching thirst, digesting easily; such as strawberries, gooseberries, currants, apricots, figs, peaches, pears, and apples. These

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should be eaten ripe, and in a small quantity; but they are windy, and therefore are best boiled, or baked, and made into sweetmeats.

Pot-herbs and roots are less nourishing than the mealy substances. Lettuce, succory, sorrel, purslain, refresh, moisten, loosen the belly, and appease the organs of the blood. Artichokes, cellery, gresses, asparagus, parsley, are a little heating. Truffles, champignons, garlic, shallots, pepper, cloves, nutmegs, mustard, heat very much. Animals are either terrestrial, volatile, aquatic, or amphibious. These differ greatly with regard to their kind, age, manner of living, and substance. Fish nourish the least of all animals, because they abound with phlegm. Young animals have a plenty of a soft and nourishing juice, but that of the older is more nourishing. The juices of the old are spirituous, gelatinous, and agreeable to the taste; but the flesh is hard and difficult of digestion. Wild animals are more light and digestible than tame. Their white parts contain a very succulent substance of tender fibres, and yield a soft aliment, and are easy of digestion.

Liquid ALIMENTS are milk, eggs, chocolate, soups, broths, &c. Milk is properly nothing but chyle, and does not need any great preparation in the stomach. It is a good aliment for persons whose stomachs are languid, and for children. New laid eggs yield very good nourishment, are easy of digestion, and agree with persons of exhausted bodies, and the aged.

Chocolate is nourishing; strengthens the stomach, restores the body, helps the digestion, and softens sharp humours. It is very proper for persons of a weak stomach. Drinks restore the fluid parts of the body; they are a vehicle for other aliments, and render the digestion easy. Water is the principal, most salutary, and most necessary for life, of which soft water, is the best, and which lathers readily with soap. It is the greatest dissolvent that we have. Water alone has cured many indispositions, but too much relaxes and weakens the solids, and causes many infirmities. Wine drunk too freely is prejudicial to health; but moderately, it strengthens the solids, and facilitates digestion; its success, as well as all other spirituous liquors, hardens the fibres, affect the nerves, diminish the secretions, destroy the appetite, and induce chronic diseases.

That malt liquor is accounted the best that is specifically lightest. The best kind of beer does not render the head heavy, nor grows sour upon the stomach, nor inflates

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inflates the hypochondria. All thick, muddy, heavy, stale beer not sufficiently boiled, offends the head, generates wind, obstructions, the strangury, asthma, and the cholick.

Tea promotes perspiration, strengthens and clears the stomach, and helps digestion. Coffee is taken after dinner to hasten the digestion, and allay the fumes of wine. Moderately used it subtilizes the humours, but its excess agitates the blood.

Broth, or soup, abounds with a soft, moistening, and nourishing jelly, whence they are good restoratives. Meat that is roasted contains an excellent nourishing juice, the moist parts being dissipated by the fire.

Things fried are proper only for good stomachs.

Spice, vinegar, &c. in a small quantity, may correct the faults of the aliment, but are pernicious when used to create an appetite; for which reason made-dishes are commonly bad. The appetite, excited by the quality and diversity of the viands, provokes persons to eat more than they ought; which causes indigestions, frequent indispositions, and sometimes dangerous diseases.

The method of preserving health is to live upon plain simple aliment, lightly seasoned, and in quantity agreeable to the age, strength of the stomach, season of the year, sex, constitution, and chiefly to what nature has found by experience to require.

Many persons, by their temperance have lived to a very advanced age; therefore those that are fond of life and health should imitate their regimen. Excesses in eating and drinking are extremely pernicious.

Persons of a weak delicate constitution, or who are just recovered from illness, should use soft-light aliments agreeable to the stomach.

Acid, tenacious, viscons aliments, pies of all kinds; things that are fat, and of a blackish substance, are generally unfit or chylification, or render the chyle bad.

Strong, robust, young persons, who use much exercise, ought to eat more than others; and may be more free with the grosser kind of aliment.

Children whose stomachs are weak, and vessels fine, ought to use a light, slender, thin, soft aliment, easy of digestion; wherefore infants should be fed with fluid milk, to avoid causing obstructions in their fine and delicate vessels. Nurses should observe an exact regimen,

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and shun all sorts of violent passions; for they disturb digestion, and communicate their bad effects to their children. When infants are weaned, they should not be accustomed to spirituous liquors and strong food, especially the salt and smoke-dried, which are hard of digestion, and yield bad nourishment. The best method is to eat a little at a time and often.

In an advanced age the fluids are more thick, the secretions slow, and the solids more stiff than in youth; wherefore they require less food, and of a more soft, nourishing, moistening kind, easy of digestion, and not too much at a time, especially in the evening.

At any time of life, especially in old age, the immoderate use of salt and smoke-dried meat, acid and aromatic vegetables, as well as spirituous liquors, tend to harden and stiffen the parts of the body, instead of affording good nourishment; besides, the digestion of these aliments is difficult, and render the blood so acid, as to hurt the capillary vessels. However, an acquired habit is difficult to be left off, and we find many persons enjoy a good state of health when their meat and drink are very indifferent, because they are become customary, and they are apt to fall sick when they attempt to change their manner of life; for custom is a second nature: all great changes ought to be brought about insensibly; it is therefore good not to contract a habit of any kind; wherefore, persons of a good constitution should live in a various manner, and refuse no kind of aliment; and should sometimes be in town, and sometimes in the country; should use much exercise, and should even now and then exceed the exact bounds of moderation, and omit a meal now and then.

Hunger points out the best time of eating, but custom confines us to certain hours. Persons who find no inconvenience from dining and supping every day, need not change their manner of life. In youth, wherein there is a great dissipation, and in age, where strength is wanting, and when little is eaten at a time, something taken between meals is not amiss. However, it is necessary to observe, that when the stomach is bad, persons should not begin to eat again till the last meal is digested. When a person is greatly fatigued, and his spirits dissipated, it will be necessary to rest before eating. In cases of distress and sorrow, the aliment should be very light and small in quantity, because the stomach is weak at those times.

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In the summer, when the spirits and fluid part are apt to evaporate, the aliment should be light, moist, fluid, and easy of digestion, to repair the loss with greater speed; whereas in winter the stomach will admit of grosser food.

ALIMONY, in law, implies that allowance which a married woman sues for, and is entitled to, upon any occasional separation from her husband.

ALIQUNT Part, in arithmetic, that number which cannot measure any number exactly without some remainder, as 7 is an aliquant part of 18, for twice 7 wants 4 of 18, and three times 7 exceeds 18 by 3.

ALIQOT Part, that part of a number or quantity, as will exactly measure it without any remainder, as 2 is an aliquot part of 4, 3, of 9, 4 of 16, 5 of 25, &c.

* **ALKAHEST**, or **ALCAHEST**, among chemists, an universal solvent or that which will dissolve all bodies without exception. The word appears to have been coined by Paracelsus.

The principal chemists are now persuaded that no such solvent ever existed in nature: at least, that no mortal was ever possessed of the secret. This, indeed, seems sufficiently evident from the very nature of the alkahest; for if it will dissolve all bodies, it will be impossible to be kept in any vessel. Van Helmont therefore cannot be credited, when he asserts that he had a bottle filled with alkahest lent him; because it could not be contained in any bottle, as it would dissolve the vessel and be lost.

ALKEKENGI, winter-cherry, in botany. It grows wild in some parts of Europe, and spreads so much in our gardens as not to be easily extirpated. The fruit ripens about the beginning of October, and sometimes continues to near the end of December, after which the plant dies to the ground. Winter cherries have an acidulous not unpleasant taste, mixed with, or followed by, a slight bitterness.

Those cherries are accounted powerful diuretics, operating without heat or irritation, and which may therefore be ventured on any inflammatory distempers: five or six of the cherries in substance, or an ounce of the expressed juice, are directed for a dose. They are said to be, in some places, eaten, among common people, by handfuls, and with good success, against suppressions of urine, and for promoting the expulsion of mucus and gravel. Mr. Ray tells us of a gouty person who was cured, and kept free from returns of his disorder, by taking eight of

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these cherries at each change of the moon; and that the operation of the medicine procured a discharge of extremely fetid matter by urine. The cherries may be dried so as to be pulverable, or the depurated juice inspissated with a gentle heat to the consistence of a rob, or extract, and in this state preserved for use. *Lewis's History of the Materia Medica.*

ALL-SAINTS, a festival observed by Christians, in commemoration of all the saints in general. It is celebrated on the first of November.

ALL-SOULS, a festival observed on the second of November, in commemoration of all the faithful deceased.

ALLA, or **ALLAH**, the name of God, among the professors of the Mahometan religion. It properly signifies the adorable Being.

ALLEGATION, in law, the producing instruments, or deeds, for proving the truth of something litigated before the court.

ALLEGIANCE, in law, the obedience which every subject owes to his lawful sovereign. Allegiance is either natural, acquired, or local. Natural Allegiance is that which every subject born ought to pay immediately upon his birth. Acquired Allegiance is that which any person naturalized, or made a denizen owes to the king. Local Allegiance is that which a person, on his entering the dominions of another prince, ought to pay for his protection.

Oath of ALLEGIANCE is that which is taken by the subject, wherein he acknowledges the king a temporal prince.

ALLEGORICAL, belonging to, or partaking of the nature of an allegory. See **ALLEGORY**.

ALLEGORICAL Poetry, that wherein some useful truth is conveyed under the veil of an allegory.

Allegorical poetry in which under the disguise of imaginary persons, and things, some real action, or instructive moral is conveyed to the mind, gives great latitude to genius, and affords such a boundless scope for invention, that the poet is allowed to soar beyond all creation; to give life and action to virtues, vices, passions, diseases, and natural and moral qualities; to raise floating islands, enchanted palaces, castles, &c. and to people them with the creatures of his own imagination.

But whatever is thus raised by the magic of his mind, should be visionary and typical, and the mystical sense appear obvious to the reader, and inculcate some

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moral or useful lesson in life; otherwise the whole will be deemed the effects of a disordered brain, instead of the productions of real wit and genius. The poet, like Jason, may sail to parts unexplored, but will meet with no applause if he returns without the golden fleece; for these romantic reveries would be unpardonable; but for the mythical meaning and moral that is thus artfully and agreeably conveyed with them; and on which account only, the allegory is indulged with greater liberty than any other sort of writing.

This sort of allegory is the most essential part of poetry; for the power of raising images of things not in being, giving them a sort of life and action, and presenting them, as it were before the eyes, is thought to have something in it like creation: but then, in such compositions, they always expected to find a meaning couched under them of consequence, and we may reasonably conclude that the allegories of ancient poets would never have been handed down to us, had they been deficient in this respect.

As the fable is that part immediately offered to the reader's consideration, and intended as an agreeable vehicle to convey the moral, it ought to be bold, lively, and surprising, that it may excite curiosity, and support attention. There must likewise be a justness and propriety in the fable, that is, it must be closely connected with the subject on which it is employed; for, notwithstanding the boundless compass allowed the imagination in these writings, nothing absurd, or useless, is to be introduced. In epic poetry some things may, perhaps be admitted for no other reason but to surprise, and to raise what is called the wonderful, which is as necessary to the epic as the probable: but in allegories, however wild and extravagant the fable and the persons introduced, each must correspond with the subject they are applied to, and, like the members of a well-written simile, bear a due proportion and relation to each other: for we are to consider that the allegory is a sort of extended or rather multiplied simile, and therefore, like that, should never lose the subject it is intended to illustrate: whence it will appear, that the genius and fancy are here insufficient without the aid of taste and judgment.

It is not sufficient that the fable be correspondent with the subject, and have the properties above described; for it must also be consistent with itself. The poet may invent what story he pleases, and form any imaginary beings that his fancy

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shall suggest; but here, as well as in dramatic writings, when persons are once introduced they must be properly supported to the end, and all speak and act in character; for notwithstanding the general licence here allowed, some order must be observed, and, however wild and extravagant the characters, they should not be absurd.

ALLEGORY, a figurative discourse, in which something else is intended than what is contained in the words literally taken.

ALLEGRO, in music, an Italian word, signifying that the part is to be played in a brisk, gay, and sprightly manner.

ALLEY, in gardening, a strait, parallel walk, bounded on both sides with trees, shrubs, &c. and generally covered with gravel or turf. It is distinguished from a path, by being broad enough for two to walk a-breast.

Covered ALLEY, that over which the branches of the trees on each side meeting each other, form a shade.

ALLEY in zodiac, is that formed by several angles, in order to render it more solitary and obscure.

ALLIANCE, in the civil and canon law, the relation between two persons, or two families, contracted by marriage.

ALLIANCE, is also used to signify a treaty entered into by sovereign princes or states, for their mutual safety or defence.

Defensive ALLIANCE, is that whereby the contracting parties engage to stand by and assist each other against any power that shall attack either.

Offensive ALLIANCE implies an agreement between powers, whereby they engage themselves to attack jointly some other prince or state.

ALLIARIA, *Jack by the Hedge*, or *Sauce all alone*, in botany, the name of a plant, with a slender, white, ligneous root, and a garlick smell. It is common in hedges and shady waste places, and flowers in May and June. It is good in cold scurvy, and in constitutions that abound with acids. Outwardly, the juice is good in putrid and sordid ulcers. If the herb has been dried for a day in the shade and then bruised in a mortar, and the juice expressed, it will keep in bottles for several years, with oil at the top. *Bracken's Natural History*.

ALLIGATION, in arithmetic, the method of resolving questions relating to the mixture of commodities, and their value and effects, when united in a composition.

Alligation is of two kinds, *medial* and *alternate*.

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ALLIGATION Medial is when, from the several quantities and rates of divers simples given, we discover the mean rate of a mixture compounded out of them. To answer questions of this sort, the sum of all the quantities proposed to be mixed, and also the sum of their particular rates, must be found. Then the proportion will be, as the sum of all the quantities is to the sum of all their rates, so is any part of the mixture to the mean rate or price of that part.

ALLIGATION Alternate, is when the rates or qualities of divers simples are given, and the quantity of each is required, necessary to make a mixture of the given rate or quality.

ALLIGATION Alternate shews the due proportion of several ingredients, and counterchanges the places of such excesses or differences as arise between the mean price and the extremes, ascribing that to the great extreme, which proceeds from the lesser, and contrarily. To resolve questions relating to alligation alternate, the rule is to set down all the particular rates, with their mean rate; then take the several differences between the mean rate, and the particular rates, setting down those differences alternately; this done, add all the differences into one sum: then the proportion will be, as the sum of all the differences is to the sum of all the quantities given; so is every particular difference to its particular quantity required.

For the solution of questions appertaining to *alligation partial*, so called when the particular rates of all the ingredients proposed to be mixed, the mean rate of the whole mixture, and any one of the quantities to be mixed are given, to find how much of each of the other ingredients is requisite to compose the mixture, take the following rule:

Set down all the particular rates, with their mean rate, and find their differences, as, in *Alligation alternate*, without having any regard to the quantity given.—Then the proportion will be as the quantity found by the differences of the same name with the quantity given, is to the given quantity; so is any of the other quantities found by the differences, to the quantity of its name.

ALLIGATOR, in natural history, an amphibious creature common in South-America, imagined by some to be the same with the chrocodile found in Asia, and Africa. Its head is long, and slender towards the extremity, gradually forming a snout like that of a hog. The upper

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and lower jaws have a row of very strong, and pointed teeth. These creatures abound in the river of Guaiacul in South America, and when tired of fishing leave the water to bask in the sun, where they appear more like logs of half rotten wood thrown ashore by the current, than living creatures; but upon perceiving any vessels near them they immediately plunge into the water. Some of them are of so monstrous a size, as to exceed five yards in length. During the time they lie basking on the shore, they keep their huge mouths wide open, till filled with muscheto, flies, and other insects, when they suddenly shut their jaws, and swallow their prey. Its whole body is covered with scales impenetrable to a musket ball, unless it happens to hit them in the belly near the fore-legs, the only part which is vulnerable. The alligator is an oviparous creature. The female makes a large hole in the sand near the brink of a river, and there deposits her eggs, which are nearly equal to those of an ostrich; and as white as those of an hen, but much more solid. She generally lays about an hundred continuing in the same place till they are all deposited, which is about a day or two. She then covers them with the sand, and the better to conceal them, rolls herself not only over her precious depositum, but to a considerable distance. After this precaution the returns to the water, till natural instinct informs her, that it is time to deliver her young from their confinement: when she comes to the spot, followed by the male, and tearing up the sand, begins breaking the eggs, but so carefully that scarcely a single one is injured; and a whole swarm of little alligators are seen crawling about. The female then takes them on her neck and back, in order to remove them into the water; but the watchful gallinazos, large birds common in South America, make use of this opportunity to deprive her of some; and even the male alligator, which, indeed, comes for no other end, devours what he can, till the female has reached the water with the few remaining; for all those which either fall from her back, or do not swim, she herself eats; so that of such a formidable brood happily not more than four or five escape. These alligators are the greatest destroyers of the fish, it being their most safe and general food; nor are they wanting in address to satisfy their desires: eight or ten, as it were by compact, drawn up at the mouth of a river or creek, whilst others of the same corps go a considerable

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able distance up the river and chase the fish downwards, by which means none of any bigness escape them. When they cannot find fish to appease their hunger, they betake themselves to the meadows bordering on the banks of the river, and devour calves and colts; and in order to be more secure in seizing their prey, take the opportunity of the night, that they may surprise them in their sleep: and it is observed, that those alligators, which have once tasted the flesh, become so fond of it, as never to take up with fish but in cases of necessity. There are even too many melancholy instances of their devouring the human species, especially children, who from the inattention natural to their age, have been without doors after it is dark; and though at no great distance, these voracious animals have dared to attack them, and having once seized the child with their mouth, to make sure of their prey against that assistance which the cries of the victim nevey fail to bring, hasten into the water, where they immediately drown it, and then return to the surface and devour it.

ALLIUM, garlic, in botany, the name of a plant, with a bulbous root, consisting of several membranes, of a whitish colour, mixed with a purplish cast. Garlick is proper to warm and stimulate the solids, and dissolve the gross clammy fluids, whence it is good in cold constitutions, and in moist althmas, as well as all defluxions on the breast. It has been found very serviceable in the dropsy, for it will sometimes cure it without any other medicine. It may be given alone, or in a decoction, made into a syrup; but it must be avoided in all inflammatory dispositions and hot diseases. It may be easily propagated in gardens, by planting the cloves, or small bulbs, in August or September, about four or five inches from each other. In the middle of June the leaves should be tied in knots, to prevent their running to seed, and then the bulb will be greatly enlarged. Towards the end of July the leaves will begin to wither, and then the root should be taken out of the ground, and hanged up in a dry room. *Brooke's Natural Hist.*

ALLOCATIONE Facienda, a writ for allowing to an accountant such sums of money as he has lawfully expended in his office; directed to the lord-treasurer, and barons of the exchequer.

ALLOCATO Comitatu, a new writ of exigent allowed, before any other county-court, held on the former not being fully served or complied with.

ALLODIAL, an epithet applied to an inheritance held without paying any acknowledgement to either lord or superior.

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Allodial lands are what we term free lands, which a person enjoys without paying any fine, rent, or service.

ALLOY, or **ALLAY**, a proportion of a baser metal yiehdome that is finer. All gold coin has an alloy of silver, and silver coin an alloy of copper. A pound weight of standard gold, by the present standard of the nation, is two and twenty carats fine, and two carats alloy; and a pound weight of standard silver consists of eleven ounces two penny weights of fine silver, and eighteen penny weights of alloy. And in proportion as gold or silver has more or less alloy than the above mentioned, it is said to be coarser or finer than the standard.

ALLUSION, in rhetoric, a figure whereby something is applied to, of understood of another, on account of some similitude between them.

ALMANAC, a table containing a calendar of days and months, the rising and setting of the sun, the age of the moon, the eclipses of both luminaries, &c.

ALMOND-TREE, *Amygdalus*, in botany; the name of a distinct genus of trees, with rosaceous flowers; and an oblong stony fruit, in which is inclosed a kernel of the same shape.

Almond-trees have a beautiful effect in a garden, while they continue in bloom, and are accordingly cultivated in this country more for the sake of their flowers than their fruit: though the latter are also well worth attending to, and may, with proper care, in a well-sheltered warm situation, be produced very good in England. The blossoms of these trees often appear in February, when the spring is forward: but if frost comes on while they are out, their beauty is of short duration, for they are soon destroyed, and produce very little fruit. On the other hand, if these trees do not flower till late in March, they seldom fail of bearing plenty of almonds, many of which will be very sweet, and fit for the table when green; but they will not keep long.

ALMONDS, the fruit of the almond-tree. There are two kinds of almonds, sweet and bitter. The greatest quantity of both sorts are produced in Syria, Barbary, Turkey, Spain, Italy, the island Cyprus, and France. In England, three sorts of almonds are distinguished, small Barbary almonds, long Jordan almonds, and short, broad, Spanish or Valencia almonds.

The medical uses of sweet almonds are, to soften and obtund acrimony, and to render resinous substances soluble in water, and in the animal fluids. The resins of

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jalap, scammony, and others, triturated with almonds, dissolve in water into an emulsion, and in this form operate effectually, without producing the violent gripes and other dangerous consequences, which they never fail to do when given by themselves. Bitter almonds are poisonous to animals, particularly to birds. In the human body, they act as resolvents and aperients. Sweetened with sugar, or made into an emulsion, they are considered as diuretic, and an anthelmintic; but seem to be too dangerous a medicine to be given with safety, there being instances of cordial spirits flavoured with bitter almonds proving poisonous to the human species.

ALMONER, an officer appointed to distribute alms to the poor.

Lord ALMONER, or *Lord high ALMONER of England* is an ecclesiastical officer, generally a bishop, who has the forfeiture of all decodands, and the goods of felons de se, which he is to distribute among the poor. He has also, by virtue of an ancient custom, the power of giving the first dish from the king's table to whatever poor person he pleases, or, instead of it, an alms in money.

ALNAGE, or **AULNAGE**, the measuring of woollen manufactures with an ell.

ALNAGER, a public officer, whose duty it is to examine into the assize of all woollen cloth, fix seals upon the various pieces, and collect the alnage-duty for the king.

ALCOF, in navigation, keep aloof, (commonly called keep the luff) is the command given by the pilot or officer to the helmsman, to direct the ship's course nearer the wind, or nearer that point of the compass which the wind blows from. This phrase probably regards the dangers of a lee-shore, from which the pilot might order the helmsman to "keep aloof."

ALOE, in botany, a genus of plants, with a liliaceous flower, consisting of one tubular leaf, divided into six deep segments at the edge. In some species of this genus, the cup, and in others the pistil, finally becomes a fruit, or seed-vessel, of an oblong cylindric form divided into three cells, containing flat semicircular seeds. The soil in which these plants thrive best is on half fresh light earth from a common, (and if the turf is taken with it, and rotted, it is much better,) the rest should be white sea-sand, and sifted lime-rubbish, of each of these two a fourth part; mix these together six or eight months at least before it is used, observing to turn it over often in this time. The first species of aloes is very

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hardy, in respect to cold; and has, in mild winters, endured abroad, being planted in a very dry soil, and under a south wall; but, as they are liable to be killed in hard frosts, they generally are kept in pots or tubs in a common green-house, with oranges, myrtles, &c. but must have very little moisture in winter. Most of the other sorts are better preserved in an airy glass-case, in which there is a stove to make a little fire in very bad weather, to dry and warm the air in foggy, cold, or wet weather, and to prevent the frost from entering the house. The fifth, sixth, seventh, eighteenth, thirty-fourth, and thirty-fifth sorts, require a greater share of heat to preserve them in winter, and should be set in a good stove, and kept nearly to the degree of heat marked (upon Mr. Fowler's Botanical Thermometers) temperate. Indeed, most of the other sorts may be kept in the same temperature of heat in winter; but then you must observe, that the greater the heat is in winter, in which you keep them, the more water they will require; and, if they are well managed in this heat, they will grow very much in winter; therefore great care must be taken in the severe cold, that it doth not enter the house, nor that the heat be at that time lessened; as also how you begin to give them air in the spring; for the extreme parts of the plants will be rendered very tender, by their growing freely in winter; and the least check to their growth, at that season, is very often their destruction. Most of the African sorts of aloes produce flowers with us annually, when grown to a sufficient size, which is generally the second, and seldom more than the third year after planting from off-sets; but the American aloes (which, for the most part, produce their flower-stems immediately from the center of the plant) seldom flower till they are of a considerable age, and this but once during the life of the plant; for when the flower stems begin to shoot from the middle of the plant (which for the most part, is of a large size, and grows to a great height), it draws all the moisture and nourishment from the leaves; so that, as that advances, the leaves decay; and, when the flowers are fully blown, scarce any of the leaves remain alive; but, whenever this happens, the old root sends forth a numerous quantity of off-sets for increase; and it is not till this time, that some of these sorts can be increased, especially the second, third, fourth, fifth, sixth, and seventh sorts, which never produce any young plants until they flower; at which time

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tim: the flower-stem of the seventh sort is beset with small heads from bottom to top, which, being taken off, and planted, will grow as well as suckers from the roots. This aloe, which with us seldom makes a very large plant, hath yet produced flower-stems of a considerable size, and fifteen feet in height. The flowers are little less than those of the large sort. I cannot here forbear taking notice of a vulgar error relating to the large American aloe: which is, that it never flowers till it is an hundred years old; but this is a mistake; since we have had several of them flower in England, some of which were known not to exceed fifty years old, and others which flowered many years ago, cannot be supposed to have been in England so long as to arrive at that age, since they were thought too tender for our climate at that time, when green-houses were not known; as may be seen by looking into Gerrard's and Parkinson's Herbars. Those who are desirous of having this sort of aloe flower, may, by giving the plants large tubs for their roots to spread, greatly promote their growth; and, in proportion to the growing of the plants, their flowering is hastened; for the bud being formed in the center of the plants, when the number of leaves which enfold it are thrown off, the stem will advance: so that in Spain and Portugal, where the plants grow fast, they produce flowers in eighteen or twenty years; and in the West-Indies, where they grow faster, in seven or eight. The African aloe, for the most part, afford plenty of suckers, by which they are increased; but those few that do not may be most of them propagated, by taking off some of the under leaves, laying them to dry for a week or ten days, as was directed for the off-sets; then plant them in the same soil as was directed for them, putting that part of the leaf which did adhere to the old plant about an inch, or an inch and a half (according to the size of the leaf) into the earth, giving them a little water to settle the earth about them: then plunge the pots into a moderate hot-bed, observing to screen them from the violence of the sun, and give them gentle refreshings with water. The best season for this is in June, that they may push out heads before winter. *Miller's Dict.*

ALOES, in the materia medica, a bitter, gummy, resinous, inspissated juice; prepared from the leaves of the above species of plants. There are three different sorts of aloe found in the shops, distinguished by the names of *socotorine*, *hepatic*, and *caballine*.

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ALOE Socotorina. Socotorine aloes are brought from the island Socotora, in the Indian ocean, wrapt in skins. This sort of aloes is of a bright surface, and in some degree pellucid, in the lump; of a yellowish red colour, with a purplish cast: when reduced into powder, of a golden colour. It is hard and friable in the winter; somewhat pliable in the summer, and softens betwixt the fingers. Its bitter taste is accompanied with an aromatic flavour, but not sufficient to prevent its being disagreeable: the smell is not very unpleasant, and somewhat resembles that of myrrh.

ALOE Hepatica. Hepatic, Barbadoes, or common aloes, are generally brought from Barbadoes; the best sort in large gourd shells; an inferior kind in pots; and a still worse in casks; and extracted from the *aloe discordis et alcerum*, of Sloane. This is darker-coloured than the foregoing. It is generally drier and more compact; though sometimes, especially the cask sort, quite soft and clammy. Its smell is much stronger and more disagreeable; the taste intensely bitter and nauseous, with little or nothing of the aromatic flavour of the socotorine.

ALOE Caballina. Caballine, or horse aloes, are prepared, probably, from the *aloe guenensis caballina vulgaris similis sed tota maculata*, and not, as is generally supposed, from the faeces of the hepatic; the difference not being in purity, but in quality. It is easily distinguished from both the foregoing by its strong rank smell: in other respects it agrees pretty much with the hepatic; and is, not unfrequently, sold in its place. Sometimes it is prepared so pure and bright as scarce to be distinguishable by the eye, even from the socotorine; but its offensive smell readily betrays it: and if this also should be dissipated by art, its wanting the aromatic flavour of the finer aloes will be a sufficient criterion.

Aloes is a stimulating cathartic bitter; taken in sufficient doses to purge effectually, as two scruples or a dram, it occasions commonly a great irritation about the anus, and sometimes a discharge of blood. In smaller doses, of ten or twelve grains, repeated once or twice a day, it not only evacuates the first passages, but attenuates and dissolves viscid humours in the remoter parts; warms the habit, quickens the circulation, and promotes the menstrual and hæmorrhoidal fluxes; its continued use renders the blood sensibly more fluid, as appears on venæsection. For a time, in these small doses, it does not act by stool; but at length it produces a gentle looseness, of longer continuance than that occasioned

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by most other purgatives : hence its utility in habitual costiveness. This stimulating cathartic is particularly adapted to persons of a phlegmatic temperament and sedentary life, to cachectic indispositions, and oppressions of the stomach by viscid crudities contracted from irregularity : in dry bilious habits it is often injurious, immoderately heating the blood, or inflaming the bowels. This bitter juice is accounted destructive to worms, (or to the matter which favours their production) whether taken internally, or applied in plaisters to the umbilical region. It is powerfully antiseptic ; and commonly made an ingredient in tinctures and balsams for cleansing and healing wounds or putrid sores.

ALOEETICS, a general name given to all medicines, whose basis or principle ingredient is aloes.

ALPHA, the name of the first letter of the Greek alphabet, answering to our **A**. As a numeral it stands for one, hence alpha and omega, being the first and last letters in the Greek alphabet, are used to signify the eternity of God.

ALPHABET, the natural or customary series of the several letters of a language.

The word is compounded of *alpha* and *beta*, the first and second letters of the Greek alphabet. The number of letters is different in the alphabets of different languages. The English alphabet contains 24 letters exclusive of the *j* and *v* consonant ; the French 23 ; the Hebrew, Chaldee, Syriac, and Samaritan, 22 each ; the Arabic 28 ; the Persian 31 ; the Turkish 33 ; the Georgian 36 ; the Coptic 32 ; the Muscovite 43 ; the Greek 24 ; the Latin 22 ; the Slavonic 27 ; the Dutch 26 ; the Spanish 27 ; the Italian 20 ; the Ethiopic and Tartarian, each 202 ; the Indians of Bengal 21 ; the Barmese 19. The Chinese have, properly speaking, no alphabet : their letters are words, or rather hieroglyphics, amounting to about 80,000.

ALPHABET, a table of the usual letters of the alphabet, with the correspondent secret characters, and other blank symbols intended to render the writing more difficult to be deciphered.

ALPHABET, among merchants, a kind of index, with the twenty-four letters in their natural order, in which are written the names of those who have open accounts, referring to the folios of the ledger.

ALPHABETICAL, belonging to, or placed in the order of, the alphabet.

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ALPHONSIN, in surgery, an instrument for extracting bullets out of gunshot wounds.

* **ALPS**, a large chain of mountains remarkable for their extent and height. They begin on the side of France, towards the Mediterranean Sea, near Monaco, between the state of Genoa and Nice, and terminate in the gulph of Cornaro, which makes part of the gulph of Venice. They bound Italy on the west and north, and separate it from France and Germany. The mountains are very broad, for they contain all the county of Nice, and Upper Provence, almost all Dauphiny, Savoy, le Valais, Switzerland, the country of the Grisons, Tirol, the bishoprics of Trent and Brixen ; the archbishopric of Saltzburg, Carinthia, and Carniola. These mountains were formerly divided into several parts, called 1. The Maritime Alps, which extend from Monaco to the Mediterranean Sea, as far as mount Vise, where is the source of the Po. 2. The Cottian Alps, which extend from mount Vise to mount Cenis, between Dauphiny and Piedmont. 3. The Greek Alps, which reach from mount Cenis, between Savoy and Piedmont, as far as St. Bernard. 4. The Pennine Alps : these reach into the country of the Valais, between Great St. Bernard and mount St. Gothard ; 5. The High Alps : it is called St. Gothard, and is between the Valais, Switzerland, the Grisons, and the Milanese. 6. The Lepontian Alps, on the south of the High Alps, between the sources of the Rhine and the Lake Major. 7. The Rhetic Alps, on the east-side of the High Alps, between the Grisons and the Valtelins. 8. The Tridentine Alps, between Tirol and the bishopric of Trent, on the east-side of the Rhetic Alps. 9. The Noric Alps, to the east of the Tridentine, between the archbishopric of Strassburgh and the state of Venice. 10. The Carnic Alps, which reach from the source of the Tagamento to that of the Lisonzo. 11. The Julian Alps ; these are most easterly of all, and reach from the river Lisonzo to the gulph of Cornaro. In this part are the Monti della Vena, which lies to the south of the lake Czirnics, and the Monti de Charfo, which are towards the county of Gorizs, and the city of Trieste. These are so called from Julius Cæsar, who was the first that lead an army over them.

ALSINE, chickweed, in botany, a small, creeping, juicy herb ; annual, yet common in all times of the year in shady cultivated ground.

ALTAR,



Plate IV.

Fig. 1
Altar of Burnt Offering.

Facing Altar.

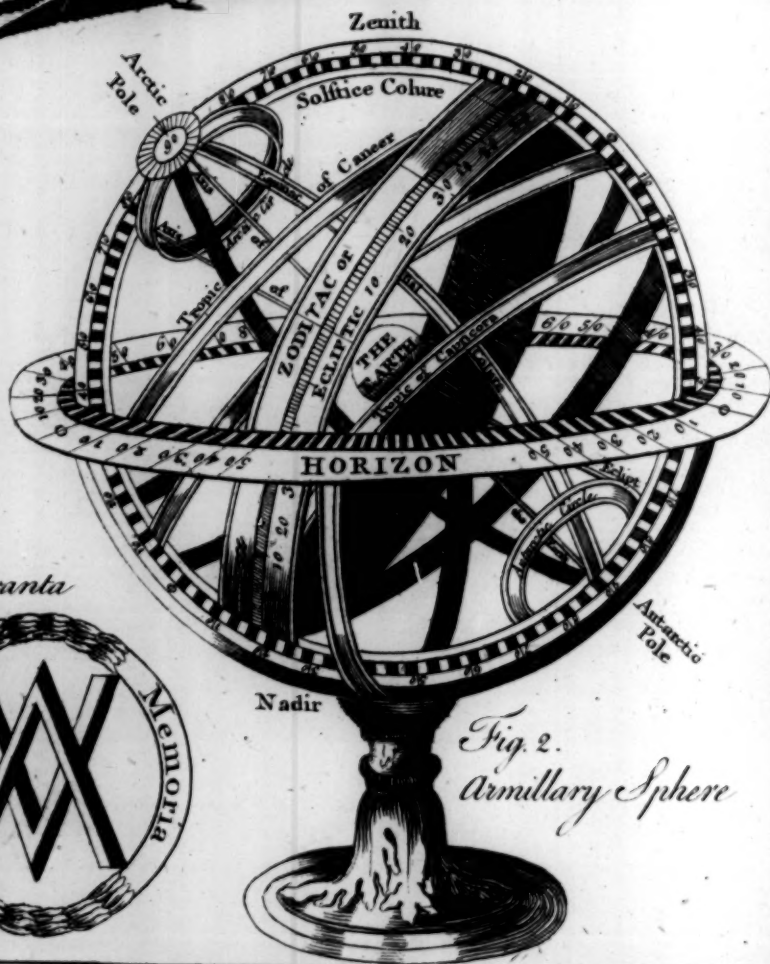
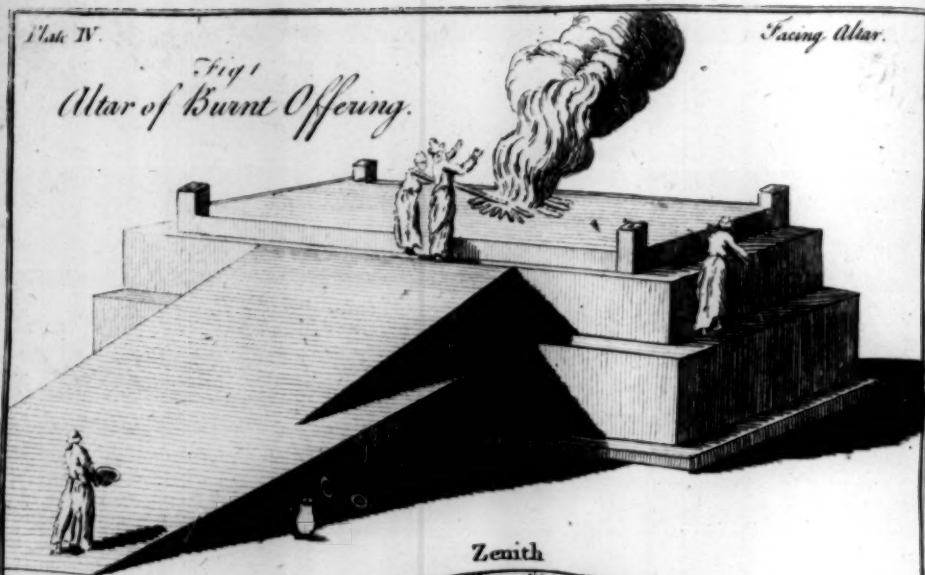


Fig. 2.
Armillary Sphere

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ALTAR, a place upon which sacrifices or offerings, were anciently made to some deity. The Scripture in some places speaks of altars erected by the patriarchs, without describing the form or matter of them. The altar which Jacob set up at Bethel, was a stone which had served him for a pillow. Gideon sacrificed upon nothing better than a stone which was before his house. The altar which Moses enjoined Joshua to build upon mount Ebal, was to be of unpolished stone; and it is very probable, that those which were built afterwards by Samuel, Saul, and David, were of the same structure. The altar which Solomon erected in the temple was of brass, but filled, as it is believed, with rough stones. Lastly, that which was built at Jerusalem by Zerubbabel, and other Jews who returned from Babylon, was only of rough stones: nor was that which the Maccabees rebuilt any better.

ALTAR of Incense. This was a small table of shittim-wood, covered with plates of gold, of one cubit in length, another in width, and two in height. At the four corners of it were four kinds of horns, and all round a little border and crown over it.

Altar, or table, for the shew-bread, was a small table of shittim-wood, covered with plates of gold, having a little border round it, adorned with sculpture. It was two cubits long, one cubit wide, and one and a half in height. It was placed in the Holy. Upon this table, every sabbath-day, were put twelve loaves with salt and incense.

ALTAR of Burnt-offerings. This was a kind of coffer of shittim-wood, covered with brass plates. It was five cubits square, and three in height. At the four corners of the altar there was an appearance as it were of four horns, covered with the same metal as the rest of the altar. Within the depth or hollow of it was a grate of brass, on which the fire was made; through this fell the ashes in proportion as they increased upon the altar, and were received below within a pan which was placed under it. At the four corners of this grate were four rings, and four chains, which kept it up at the four horns of the altar abovementioned. As this altar was portable, Moses had rings made and fastened to the sides of it, into which were put staves of shittim-wood, overlaid with brass, by the help whereof it was removed from place to place. Such was the altar of burnt-offerings belonging to the tabernacle erected by Moses in the wilderness: but in Solomon's temple it

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was much larger. The altar of burnt-offerings, according to the rabbins, was a large mass all built of rough and unpolished stones, the basis whereof was thirty-two cubits, or forty-eight feet square. See Plate IV. *fig. 1.*

The heathens made their altars at first only of turf; but afterwards they were made of stone, of marble, of wood, and even of horn, as that of Apollo in the island of Delos. The figure of them, as well as the materials, was different; they were always turned towards the east, and stood lower than the statues of the gods, which were placed upon the bases above the altar, which was generally adorned with leaves and flowers; those of Apollo with laurel; those of Hercules with poplar; Jupiter's with oak; Venus's with myrtle; and those of Minerva with olive. The altars were usually consecrated with oil, which was poured upon them.

The height of altars differed, according to the different gods to whom they were consecrated: for the Celestial Gods, had their altars raised to a very great height above the ground. To the terrestrial gods and heroes, they sacrificed upon altars almost close to the ground; and they dug a hole in the earth for those of the infernal gods. Before temples were in use, altars were erected sometimes in groves, sometimes in the highways, and sometimes on the tops of mountains: and it was customary to engrave upon them the name, a proper emblem, and character of the deity to whom they were dedicated.

ALTAR, the communion table in the reformed churches.

ALTERATIVES, or ALTERATIVE medicines, such medicines as correct the bad qualities of the animal fluids, without occasioning any sensible evacuation.

ALTERNATE, in a general sense, signifies a term applied to such persons or things, as succeed each other by turns.

ALTERNATE, in botany, implies such a disposition of the leaves of a plant, that the first on one side of a branch stands higher than the first on the other side; the second the same, and so on to the top.

ALTERNATE, in heraldry, is said with regard to the situation of the quarters. Thus the first and fourth quarters, and the second and third, are usually of the same nature, and are thence called alternate quarters.

ALTERNATE Angles, in geometry, are those acute or obtuse angles which are

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opposite to each other, and formed by a right line cutting two parallel right lines.

Allegation **ALTERNATE**. See **ALLEGATION**.

ALTERNATE *Ratio*, or *Proportion*, is where the antecedent of the one ratio is to its consequent, as the antecedent of another to its consequent; the very same ratio, in this case, holding alternately in respect of the antecedents to each other, and the consequents to each other.

Thus, if $A : B :: C : D$; then alternately $A : C :: B : D$. See the article **PROPORTION**.

ALTERNATION, a succession in terms.

This is also called permutation, &c. and is easily found by a continual multiplication of all the numbers, beginning at unity. Thus, if it be required to know how many changes or alterations can be rung on six bells, multiply the numbers 1, 2, 3, 4, 5, 6, continually one into another, and the last product gives the number of changes, in this case, 720. See **CHANGE**.

ALTERNATIVE, in a general sense, implies nearly the same as alternate. See **ALTERNATE**.

ALTHÆA, *Marshmallows*, in the materia medica. It grows wild in marshes, and other moist places, though frequently cultivated in gardens. It is perennial, and flowers from June to near the end of summer.

Of all the mucilaginous vegetables, marshmallow-root is of the most general use, for obtaining and incrassating acrimonious thin fluids, in tickling coughs from defluxions on the fauces and lungs, in hoarseness, erosions of the stomach and intestines, difficulty and heat of urine, and for lubricating and relaxing the passages in nephritic and calculous complaints. The root is sometimes given in powder, from a scruple to a dram or two, either by itself, or in conjunction with other materials of similar intention, as gum tragacanth, starch, &c. It is rather too bulky, however, for this form; and may in most cases, be taken better in that of an infusion or decoction, sweetened with liquorice: an ounce of the dry root is sufficient for a quart or three pints of water, a large proportion rendering the liquor disagreeably slimy. A syrup, made by boiling a pound of the fresh roots in a gallon of water till half the liquor is wasted, pressing out the decoction, and after settling for a night, boiling it down with four pounds of fine sugar till the weight of the whole is six pounds, is kept in the

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shops, and employed occasionally in some disorders of the breast, and for sweetening emollient decoctions in nephritic cases. See *Lewis's History of the Materia Medica*.

***ALTHÆA**, in fabulous history, the wife of Æneas, king of Calidonia, and mother of Meleager, who threw into the fire the fatal brand, on which, by the decree of the Destinies, the life of her son depended.

ALTIMETRY, the art of measuring altitudes or heights, accessible or inaccessible. See **ALTITUDE**.

ALTITUDE, *Altitudo*, in geometry, the third dimension of body, considered with regard to its elevation above the ground; called also height or depth.

ALTITUDE of a figure, is the distance of its vertex from its base, or the length of a perpendicular let fall from the vertex to the base.

ALTITUDE, in optics, the angle subtended between a line drawn from the eye, parallel to the horizon, and a visual ray emitted from an object to the eye.

ALTITUDE of the Eye, in perspective, a right line let fall from the eye perpendicular to the geometrical plane.

ALTITUDE, in astronomy, the distance of the sun or star from the horizon. This altitude is measured by an arch of a vertical circle intercepted between the point where the sun or star then is, and the horizon.

Apparent **ALTITUDE**, of any heavenly object, is the arch of a vertical circle intercepted between the sensible horizon and the centre of the object.

True **ALTITUDE** is the arch of a vertical circle comprehended between the center of the object and the rational horizon.

The true altitudes of the sun and planets differ but very little from their apparent altitudes; because of their great distances from the center of the earth, and the smallness of the earth's semi-diameter, when compared thereto: but the distance between the true and apparent altitude of the moon is very considerable, it sometimes amounting to upwards of 50 minutes.

Meridian **ALTITUDE** of the Sun, Planet, or Star, an arch of the meridian intercepted between the horizon and the center of the object.

ALTITUDE of the Pole is the height of the pole above the horizon, or an arch of the meridian intercepted between the pole and the horizon.

The altitude of the pole is always equal to the latitude of the place, and the distance of the pole from the zenith of the place

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place, is always the complement of the latitude thereof.

ALTITUDE of the Equinoctial is the elevation of the equinoctial above the horizon, and is always equal to the complement of the latitude, or the complement of the altitude of the pole.

Refraction of ALTITUDE is an arch of a vertical circle, as S : (plate VI. fig. 5.) whereby the altitude SE , of a star, or other body, is increased by means of the refraction.

ALTITUDE, in cosmography, is the perpendicular height of an object, or its distance from the horizon, upwards.

The altitudes of objects, situated on the surface of the earth, are either accessible or inaccessible.

Accessible ALTITUDES of an Object, is that whose base you can have access to, i. e. measure the nearest distance between your station and the foot of the object on the ground.

To take an accessible ALTITUDE, let C (plate VI. fig. 1.) represent a tower standing upon level ground, whose height is required; with a chain or staff of a known length, measure the distance between your stations at E and D , the foot of the tower, which suppose equal to 160 feet; then holding the quadrant in an horizontal position, look through the sights at the tower, and where the visual ray terminates make a mark, as at A , which will shew the height of the eye above D , the bottom of the tower; then elevate the instrument, till C , the top of the tower, is seen through the sights. Now it is plain that the triangle BAC is formed by these three lines, viz. BA the distance of the observer's eye from the tower, AC the height of the tower above his eye, and BC a line drawn from his eye to the top of the tower. In this triangle the angle A is a right one by the supposition the angle B is found by the quadrant, which suppose 70° , and the measure of one side, BA , is known, viz. 160 feet; whence AC may be easily found: for if BA be made radius, then AC will be the tangent of the angle CBA . Therefore, as radius: $AB :: \tan \text{ang. } ABC : AC = 440$; and consequently, if AD , the height of the observer's eye from the ground, be added, you will have the whole height of the tower CD .

An accessible ALTITUDE may also be measured geometrically, without the help of the quadrant, in the following manner. Suppose it were required to find the

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height of the tree CD , (plate VI. fig. 2.) plant a staff, as EB , of a known length perpendicularly in the ground; then, lying prostrate on your face, move yourself forwards or backwards till the top of the staff E be in a right line with that of the tree at D : measure the distance from the eye at A to the staff at B , and also from A to the foot of the tree at C : then, because the triangles ABE and ACD are similar, it will be, as $AB : AC :: BE : CD$, the height of the tree required.

Inaccessible ALTITUDE of an Object, is that when the foot or bottom cannot be approached by reason of some impediment.

To take an inaccessible ALTITUDE; let AB (plate VI. fig. 6.) be a tower, whose height is required: to do this make choice of two stations, D and C , in the same right line with B ; then measure the stationary distance DC , and with a quadrant, or other proper instrument, take the angles D and C , as before in accessible altitude. Now the two visual lines DA and CA , together with the distance DC , form an oblique-angled triangle, wherein there are given the three angles D , ACD , and DAC ; for the difference of the observed angles is equal to the angle CAD . Therefore say, as the sine of the angle CAD is to CD , so is the sine of the angle ADC to AC . Then, radius: $AC :: \sin < ACB : AB$, the height of the tower required.

To find the inaccessible ALTITUDE of an Object standing upon an Hill. Let AK (plate VI. fig. 4.) be a tower upon a hill, whose height is required to be found on the plane at the foot of the hill: first make choice of two stations, as D , C , in a right line with the object, and at D take the angle ADB , then measure the distance DC , and at C take the angles ACB and KCB . Now, in the oblique triangle ADC , we have the base DC and the angles given, to find AC , (as in the foregoing proposition) which being obtained, we shall have radius: $AC :: \sin < BAC : BC$, whence AB may be found; lastly, as radius: $\tan$ of the observed angle $KCB :: BC : BK$, which subtracted from AB , leaves AK the height required.

The method of taking considerable terrestrial altitudes, of which those of mountains are the greatest, by means of the barometer, is very easy and expeditious. This is done by observing, on the top of the mountain, how much the mercury has fell below what it was at the foot of the mountain. See the article *BAROMETER*.

ALUM,

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ALUM, *Alumen*, in natural history, a semi-transparent, austere, styptic salt, composed of the vitriolic acid, and a certain earth, found in all the argillaceous fossils hitherto examined. The greatest quantities of this salt are artificially produced from different kinds of minerals, whose nature and composition are little known.

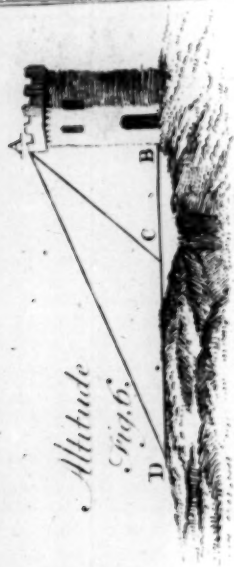
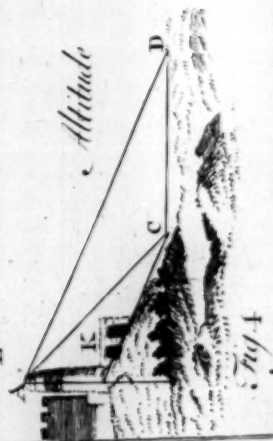
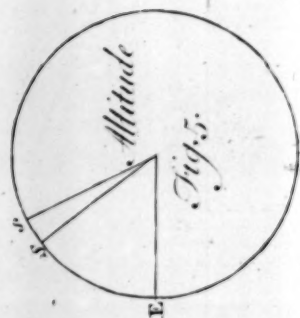
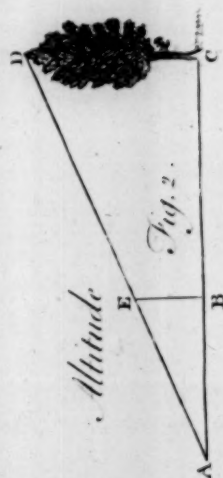
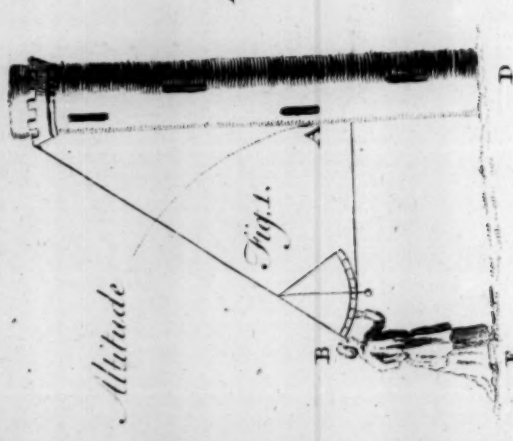
The reddish Roman alum is prepared from a reddish stone found at the bottom of the hill Tolfa, near Civita Vecchia, in the Ecclesiastical State. In Sweden and some parts of Bohemia, alum is made from pyrites and other ores; in England, at Alstattel, and sundry other places, from bituminous minerals of the pit-coal kind; at Solfatara near Naples, from a whitish earth; in Misnia, from a blackish one; at Leowenberg near Freyenwalde, from a reddish one; and from different minerals at Saalfeld, Reichenbach, Leifersdorff, Sufersdorff, Eliard, Schwentzel, Duben, &c. The purest and most perfect alum ore is the reddish stone of Tolfa: this is said to yield alum without any additional matter, though not without artificial management; the alum obtained from it is tinged with the reddish colour of the stone. In its natural state it gives no marks of alum; and, if exposed to the air, it continues a hard insipid stone. Calcined or roasted, and then laid for a time in the air, it becomes by degrees aluminous, and gives out its alum on being boiled in water. This alum the Italians call *alum di rocca*, alum made from a stone or rock; among us, the name *alumen rupeum*, or rock alum, is often applied to the larger crystalline masses, whatever subject they have been prepared from. The aluminous pyrites and bitumen require no calcination, unless they greatly abound with sulphur. These minerals, at first taken out of the earth, are compact, and often bright and glittering: they have no manner of taste, and discover no mark of their holding any thing saline; the vitriolic acid being as yet blended with an inflammable matter, by which its acidity and all its saline characters are destroyed. On bare exposure to the open air, the inflammable principle is dissipated, and the acid is combined with the aluminous earth into a perfect alum, the stone at the same time falling into powder. The mineral, thus impregnated with alum, is elixated or boiled with water; the liquor boiled down, commonly with an addition of urine, or alkaline ley, or both together; the clear part poured off and set to shoot: the crystals if not sufficiently pure, dissolved again, boiled down with a little

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more alkali, and crystallized afresh. The use of the urine or alkali salt is partly to clarify the liquor, and precipitate such metallic parts as it may contain, and partly to give a body to the alum, and promote the crystallization; the liquor of itself would not shoot, but either continue fluid, or if further evaporated, would yield only an unctuous mass. Alkaline salts are found to answer better than urine, and hence are now in most places alone made use of, though some still retain urine from prejudice and custom. The alkali precipitates not only metallic matters, but a gross earth which would injure the transparency of the salt, and even also a part of the aluminous earth itself, which falls to the bottom in form of a fine white meal, called at the works alum meal; this is to be redissolved and crystallized afresh. The mineral remaining after elixation, exposed for some years to the air, becomes impregnated with alum again; in some places this process is repeated a third and fourth time.

The alum stae near York, in England, are considerably sulphureous; by lying long in the air, they become aluminous of themselves; but to promote this effect they are usually calcined. The boilers are large leaden pans, nine feet long, five feet broad, and two and a half in depth; the liquor is clarified and disposed to crystallize by the addition of soda, there called kelp, and of urine. The crystallization of alum is usually performed in large strong wooden casks, whose staves and hoops are all marked with numbers, that they may be readily put together; in some places iron vessels are used. The casks being filled with the alum liquor evaporated to a due consistence, and set in a cold place, the alum gradually shoots into large crystals about the sides; the liquor in the middle is then let off by a cock in the bottom, the head of the cask knocked out, and the vessel turned upside down, for the more effectual draining off of the remaining liquid. The crystals are then dried in a warm stove, and packed up in casks; and the mother-ley, or uncrystallized liquor, mixed with fresh aluminous leys. Alum requires about ten times its weight of water to dissolve in. The solution, if the alum was pure, makes no change in the colour of syrup of violets; but the common sorts change the syrup green, by virtue of the alkaline salt employed in their preparation. Fixed alkalies, volatile alkalies, and borax, added to solutions of alum, precipitate the earth. Its taste is nauseously sweetish and astringent. In crystallization,





tion, it shoots into large angular masses, consisting generally of eleven planes, five of which are hexangular and six quadrangular. *Burnt ALUM* is nothing more than alum exposed to the action of the fire; by which means it liquifies, and boils up like green vitriol; and when its phlegm is evaporated, forms a white spongy brittle mass.

ALUM Water, a composition used by those who colour prints, &c. and made in the following manner:

Boil three ounces of alum, in a quart of rain or river water, till the salt is dissolved. Then take it from the fire, and after standing twenty-four hours to settle, pour off the clear liquor for use. With this water they wash their prints to prevent the colours from sinking into the paper, and give them a brightness which they would otherwise want.

ALUMINOUS, an epithet applied to such things as partake of the nature or properties of alum.

ALUMINOUS Waters, those impregnated, either by nature or art, with the virtues of alum. The spa at Scarborough is said to be of the former kind.

ALYSOIDES, in botany, a distinct genus of plants, with cruciform flowers, and elliptical fruit, divided by an intermediate membrane into two cells, which contain a considerable number of small roundish seeds.

ALYSSON, or *ALYSSUM*, in botany, the name of a genus of plants called in English mad-wort: This plant is said to be aperitive and diaphoretic; but is seldom used at present.

AMAIN, in sea language, signifies at once. Thus to lower amain, is to lower at once, or let go the fall of the tackle.

AMALGAMA, in chemistry, a mass of mercury united and incorporated with some metal.

AMALGAMATION, in chemistry, the operation of making an amalgam, or mixing quicksilver with some metal. Trituration is often sufficient to make an amalgam; but a proper degree of heat is also of very considerable use. Mercury, amalgamated with a metal, gives it a consistence more or less soft, and even fluid, according to the greater or smaller proportion of mercury employed. All amalgamas are softened by heat, and hardened by cold.

Mercury is very volatile; vastly more so than the unfixed metals: moreover, the union it contracts with any metal is not sufficiently intimate to entitle the new compound resulting from the union to all

the properties of the two substances united; at least with regard to their degree of fixity and volatility: from all which it follows, that the best and surest method of separating it from metals dissolved by it, is to expose the amalgama to a degree of heat sufficient to make all the quicksilver arise and evaporate; after which the metal remains in the form of a powder, and being fused recovers its malleability.

If it be thought proper to save the quicksilver, the operation must be performed in close vessels, which will confine and collect the mercurial vapours.

Of all metals gold unites with mercury with the greatest facility; next to that silver; then lead, tin, and every metal, except iron and copper, the last of which incorporates with quicksilver with great difficulty, and the former scarce at all.

The amalgama of gold is thus made: take a dram of the regulus of gold, beat it into very thin plates, and upon these, heated in a crucible red-hot, pour an ounce of quicksilver, stir the matter with an iron rod, and when it begins to fume, cast it into an earthen pan filled with water, and it will coagulate and become tractable. Gold will retain about thrice its weight of mercury.

To make an amalgama of lead: melt clean lead in an iron ladle, add to it an equal weight of melted mercury, stir them together with an iron rod; then let them cool, and you will have an uniform mass of a silver colour, somewhat hard, but growing softer and softer by trituration. Put this mass into a glass mortar, grind it, and mix with it any quantity of mercury at pleasure, and it will unite with it, as salt with water.

The amalgama of tin is made exactly in the same manner, and this also may be diluted by the addition of mercury.

To have an amalgama of copper: take a solution of pure copper made in aquafortis, so strong that the aquafortis could dissolve no more of the metal; dilute the solution with twelve times its quantity of fair water; heat the liquor, and put it into polished plates of iron, and the copper will be precipitated in a powder to the bottom, while the iron will be dissolved: proceed thus till all the copper is fallen; pour off the liquor, wash the powder with hot water, till it becomes perfectly insipid; then dry the powder, and grind it in a glass mortar with an equal weight of hot quicksilver, and they will unite into an amalgama, which will also receive a farther addition of mercury. An amal-

ma of copper in any other way is very difficult to make.

Pure silver, precipitated from aquafortis, may in the same manner be made into an amalgama.

From these operations we may perceive that the making of amalgamas is the foundation of the art of gilding, both of gold and silver; and that metals, by that art, may be mixed, confounded, and secretly concealed among one another.

AMALTHEA, in mythology, the goat that suckled Jupiter, which was afterwards placed by that god among the stars.

AMARANTA, or AMARANTE, an order of knighthood, instituted in the year 1653, by Christina, queen of Sweden, in memory of a masquerade, in which she had assumed that name, which signifies unfading, or immortal. See plate IV.

fig. 3.

AMARANTHUS, in botany, the name of a genus of plants, sometimes called prince's feather.

Amaranthus must be sown on a good hot-bed, in February, or the beginning of March at farthest; and in about a fortnight's time the plants will rise; when you must prepare another hot-bed, covered with good light rich earth, about four inches thick; then raise up the young plants with your finger, so as not to break off the tender roots, and prick them into your new hot-bed, about four inches distance every way; give them a gentle watering to settle the earth to their roots; but, in doing this, be very cautious not to bear the young plants down to the ground by hasty watering, which rarely rise again, or at least so as to recover their former strength in a long time, but very often rot in the stems, and die quite away. The amaranthus tricolor and bicolor must be kept longer under the frames than the cook's toms; and, in order to have them very beautiful, it will be proper to make a fresh hot-bed in a glass-case; or, where such a conveniency is wanting, to erect some of the lights which were placed over cucumbers, round an hot-bed, and cover those with the same lights on the top, so as to resemble a glass-stove. On this hot-bed, you should place your amaranthus at such a distance from each other, as to allow them room to spread; observing to refresh them often with water, and in warm weather let them have plenty of fresh air. With this management the plants may be raised five or six feet high, and their leaves will come to the most beautiful colours; after which they may be exposed to the

open air, and removed to adorn the several parts of the garden. *Miller's Dict.*

*AMAZONS, a nation of female warriors, whose existence has been esteemed merely fabulous by several; while others maintain, that their existence is sufficiently proved by the testimony of such of the historians of antiquity as are most worthy of credit, by the monuments which many of them have mentioned, and by medals, some of which are still remaining, and that there is not the least room to believe that what is said of them is fabulous. The Scythians had a great part of Asia under their dominion upwards of four hundred years, till Ninus, the founder of the Assyrian empire, conquered all the countries subject to the Scythians. After his death, which happened about the one thousand one hundred and fiftieth year before the Christian æra, and that of Semiramis and their son Ninias, Ninus and Scolopites, princes of the royal blood of Scythia, were driven from their country by other princes, who, like them, aspired to the crown. They departed with their wives, their children, and their friends, and followed by a great number of young people of both sexes, passed into Asiatic Sarmatia, beyond mount Caucasus, where they formed an establishment sword in hand, supplying themselves with the riches they wanted, by making excursions into the countries bordering on the Euxine Sea. The people of those countries, exasperated by the incursions of their new neighbours, united, surprised, and massacred the men. The women then resolving to revenge their death, agreed to form a new kind of government, to choose a queen, enact laws, and maintain themselves without men, even against the men themselves. They had no sooner formed their resolution, than they prepared to execute it, and exercised themselves in all military operations. They soon secured the peaceable possession of the country; and not content with shewing their neighbours that all their efforts to drive them thence, or to subdue them, were ineffectual, they made war upon them, and extended their own frontiers. They had hitherto made use of the instructions and assistance of a few men that remained in the country, but finding at length that they could stand their ground, and aggrandize themselves without them, they killed all those whom slight or chance had saved from the fury of the Sarmatians, and for ever renounced marriage, which they now considered as an insupportable slavery. But as they could only secure the duration of their new kingdom



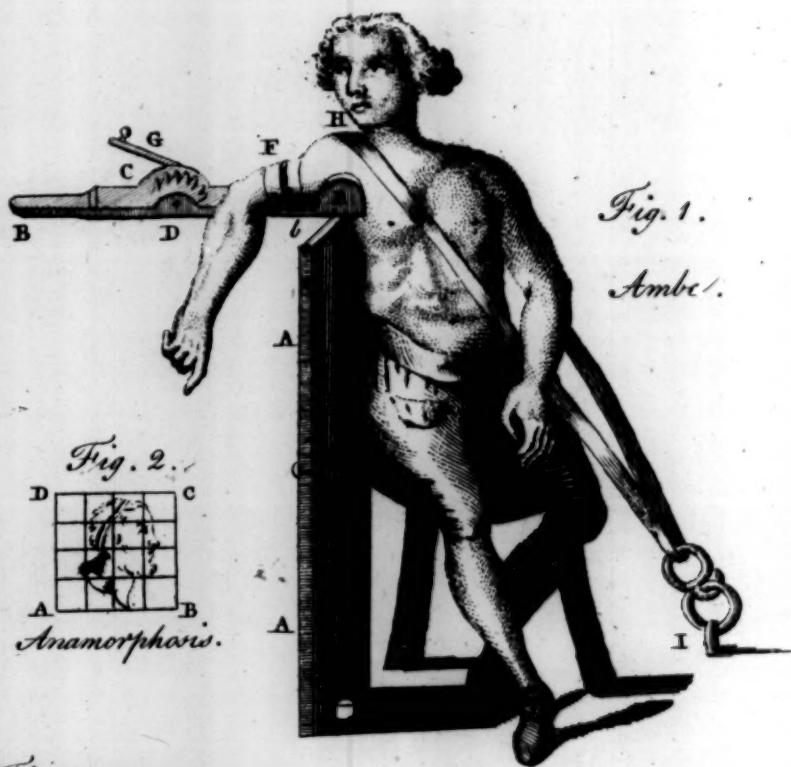


Fig. 1.
Ambe.

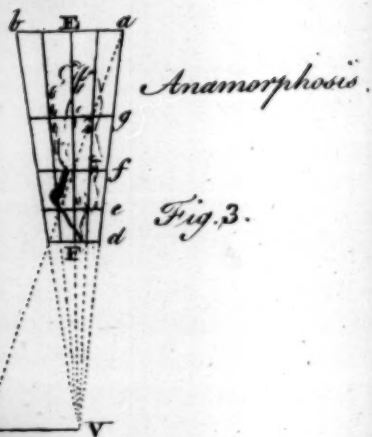


Fig. 5. Armadillo. S V



kingdom by propagation, they made a law to go every year to the frontiers, to invite the men to come to them, and to deliver themselves up to their embraces, without choice on their part, or the least attachment, and to leave them as soon as they were pregnant. All those whom age rendered fit for propagation, and were willing to serve the state by breeding girls, did not go at the same time in search of men; for in order to obtain a right to promote the multiplication of the species, they must first have contributed to its destruction, nor was any thought worthy of giving birth to children till she had killed three men. If from this commerce they brought forth girls, they educated them; but with respect to the boys, if we may believe Justin, they strangled them at the moment of their birth: according to Diodorus Siculus, they twisted their legs and arms, so as to render them unfit for military exercises; but Quintus Curtius, Philostratus, and Jorados, say, that the less savage sent them to their fathers.

AMBASSADOR, one who is sent in a public character from one sovereign to another. The word is derived from the low Latin, *ambasciator*.

Ambassadors are either ordinary or extraordinary.

AMBASSADOR Ordinary, is one residing at another court for keeping up a good intelligence between the two powers, taking care of the interest of his master, and negotiating such affairs as may occasionally happen. Till within these two centuries, all ambassadors were extraordinary, and retired as soon as they had finished the affair they were sent to negotiate.

AMBASSADOR Extraordinary, is a person sent to the court of a foreign power, on some particular emergent and pressing affair, as to conclude a peace, or a marriage, make a compliment, &c. There is no essential difference between ambassadors ordinary and extraordinary; the motive of their ambassies alone distinguishes them: they are equally entitled to the privileges given to ambassadors by the law of nations. The name of ambassador, says Cicero, is sacred and inviolable. And this has always been the opinion of all nations; for we find that David thought the affront offered to his ambassadors, a sufficient reason for making war against the Ammonites; and Alexander put the inhabitants of Tyre to the sword for insulting his ambassadors.

AMBERVALIA, a ceremony among the ancient Romans; when, in order to

procure from the gods an happy harvest, they conducted the victims thrice round the corn fields, in procession, before they were sacrificed.

AMBE, among surgeons, an instrument for reducing a dislocated shoulder. This instrument has received various improvements at different times, and by different persons. Mr. Freke, late surgeon to St. Bartholomew's hospital, both improved the machine, and rendered it portable; we shall therefore give a description of the ambe, according to his construction. This machine, (represented on plate V. fig. 1.) which consists of two boxes, A, A, joined at the ends by two hinges, contains, when folded together, every thing that can possibly be wanted in reducing a dislocated shoulder; and it may so easily be made use of, without the assistance of any other than the surgeon employed, that (says the ingenious author) I may venture to affirm, a patient may be set down, the instrument applied, and the shoulder reduced, in one minute, ordinarily speaking. The length of this instrument, when shut up, is one foot eight inches, its breadth nine inches, and its thickness three inches and a quarter. When it is opened, it is kept so by two hooks fixed on the backside of it; and when one end of it stands on the ground, the other stands high enough to become a fulcrum, or support of the lever B, B, which is fixed on a roller *d*, by a large wooden screw, which turning sideways, as well as with the roller, it obtains a circumrotatory motion; so that it will serve to reduce a luxation, either backward, forward, or downward. The roller, on which the lever is fixed, is just the diameter of the depth of one of the boxes, into which are driven two iron pins, the ends of which are received by the two sides of the box, which are an inch thick. The lever is two feet four inches long, and is cut off and joined again by two hinges C, to fold up so as to be contained in the boxes. On the backside of it is a hook to keep it straight; the other end of it is to hang over the roller about an inch and a half, which is to be excavated and covered with buff leather, for the more easy reception of the head of the os humeri. Two iron cheeks D, are screwed on each side of the lever, to receive through them an iron roller, which has two holes through it to receive two cords coming from a brace F, fixed on the lower head of the os humeri; for on no other part of the arm above the cubit can a bandage for this purpose be useful; for, if it be applied on the muscular part of the arm, it never

fails slipping down to the joint before you can extend the limb. The iron roller has a square end, on which is fixed a wheel G, within the cheek notched round, which works as a ratchet, on a spring catch underneath the lever, by which it is stopped, as you wind it with a winch; and may at pleasure be let loose, as there shall be occasion for it, by discharging the catch. We come now to describe the brace F, which, compared with common bandages, is of more consequence than can easily be imagined by unexperienced persons. It consists of a large piece of buff leather, big enough to embrace the arm, sewed on two pieces of strong, iron, curved plates, rivetted together, one of them having an eye at each end to fasten two cords in; the other is bent at the ends into two hooks, which are to receive the cords, after they have crossed over the arm above. In order to keep the patient steady in his chair from coming forward, or letting the scapula rise up on depressing the lever, after the limb is extended by the winch, there must be fixed over the shoulder a girth with two hooks at the ends of it, long enough to reach to the ground on the other side, where it must be hooked into a ring I, screwed into the floor for that purpose. *Philosophical Transactions.*

AMBE, among anatomists, implies the superficial jutting out of a bone.

AMBER, *succinum*, or *electrum*, in natural history, a pellucid and very hard inflammable substance, of an uniform structure, a bituminous taste, a fragrant smell, when rubbed, and highly endowed with that remarkable property called electricity. Amber is a solid mineral bitumen; this bitumen is met with plentifully in regular mines in some parts of Prussia; the upper surface is composed of sand, under which is a stratum of loam, and under this a bed of wood, partly entire, but chiefly mouldered or changed into a bituminous substance; under the wood is a stratum of vitriolic or rather a luminous mineral, and under this another bed of sand, in which the amber is found. Strong sulphureous exhalations are often perceived in the pits. The digging of amber is a very dangerous work; the ground not being stony or rocky, as in metallic mines, but sandy or loamy, and hence very subject to fall in when hollow underneath. His Prussian majesty receives a large annual revenue from this commodity: he has a peculiar council called the Amber-chamber; and no one but those appointed for that purpose is permitted to dig or fish for amber in his dominions. Small quantities of amber

are met with also in Bohemia, Silesia, Saxony, Hungary, France, &c. The pieces of amber now and then found in these places were not perhaps originally produced there, but carried thither by the flood. Various kinds of substances are often enclosed in masses of amber, as drops of water, which pass from side to side upon moving the mass, small bits of wood, moss, leaves of plants, &c. a variety of insects, particularly gnats, flies, spiders, ants, moths, butterflies, grasshoppers, bees, worms, cantharides, caterpillars, crickets, maggots, lice and fleas. There are reports also of frogs, vipers, fishes, and other large animals being found in masses of amber, and such are figured in *Mercatus's Metalotheca*; but most of these are artificial preparations; even the fish in amber, in his Prussian majesty's repository, is manifestly factitious. The generality are however natural. Hence it is evident, that this bitumen has once been in a fluid state, though we cannot conclude that it ever was a liquid or oily matter, and acquired its consistency and solidity by degrees. Appearances are rather contrary to this supposition. The insects found in amber have nothing of those strained or distorted postures which animals are naturally thrown into upon endeavouring to disengage themselves when entangled in a viscous liquid. We often see pieces of amber in which there are perfect flies, with the wings and feet beautifully expanded as if they were still flying. It is therefore most probable that the amber was generated instantaneously from the concurrence of mineral oil or petroleum, with vitriolic acid, in the form of vapours, which at once concreted together, and embalmed the insects that happened to lye in their way, with a more durable and precious covering than has ever fallen to the lot of the most magnificent monarchs. There are different sorts of amber in regard to external appearance; opaque and transparent; white or whitish, yellowish or yellow, greenish, brownish, bluish, reddish, or brownish red; what is called black amber is no true amber, but bitumen of the pitch, asphaltum, or jet kind. Some divide amber into native and factitious. There are indeed artificial masses resembling amber in appearance; but no true amber has hitherto been produced by art. In Holland, a vegetable resin, whose proper name is *gummi de laek*, is sold under the name of American amber: this, when in considerable masses, and by itself, is easily distinguished from the genuine amber, by its having less electricity, wanting the peculiar strong smell which amber emits in burning,

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burning, by its greater solubility in spirit of wine, and not yielding the same principles as amber in distillation; small pieces of the resin, mixed among true amber, are discovered with more difficulty; and this abuse is not unfrequently practised. With regard to the transparent ambers, it may be proper to take notice, 1. That insects or other foreign bodies are observed chiefly in these; possibly they may often be lodged also in opaque amber, though the opacity of the mass prevents our seeing them. 2. That opaque amber is capable of being made transparent by art; and hence that all our transparent ambers were not naturally such. 3. That the fine gold yellow transparent sort is entirely natural; the common methods of improving the transparency, weakening the colour. There are means of communicating to amber a variety of colours: one Somnelfson, an excellent artist at Breslau, not only made opaque amber transparent, but tinged it red, blue, violet, of a purplish, green and white, and cut it into brilliants, necklaces, carpendants, bracelets, &c. in imitation of precious stones; as also into spectacles, microscopes, prisms, burning lens's, &c. of which an account may be seen in the Breslau collections. 4. That amber clarified by art is always harder, and less electric than in its natural untransparent state. The workmen have two methods of clarifying amber; one by surrounding the amber with sand in an iron pot, and cementing it with a gradual fire for forty hours; some small pieces placed near the sides of the vessel being occasionally taken out for judging of the effect of the operation. The second method, which is that most commonly practised, is by digesting and boiling the amber about twenty hours in rapeseed oil, by which it is rendered both clear and hard; treated in the same manner with linseed oil, it does not become clear. Of the common menstrua, there is not one which totally dissolves this concrete; most liquors, however, extract some portion of it. A tincture made in vinous spirits is kept in the shops, highly rectified spirits of wine extracting of itself a sufficiently strong tincture.

Oil and Salt of AMBER. Amber melts and burns in the fire, and emits a strong peculiar smell. Distilled in a strong heat, it yields a phlegm, an oil, and a particular species of volatile saline matter. Those whose sole business it is to distil amber in Prussia, and whom long experience has taught the most advantageous methods of doing it, use no addition. The English chemists likewise distil their amber with-

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out addition, and sell their residuum to the japaners, who prepare from it the finest black varnish. See VARNISH.

The most valuable product in this operation is the salt, which, when obtained by the common processes, will turn out browner, and browner, and is therefore to be reserved for inferior purposes, or further purified by repeating the solution, filtration, and crystallization. With regard to its virtues, it is accounted aperient, diuretic, and antihysterical; its great price has prevented its coming much into use, and probably its real virtues, though doubtless considerable, fall greatly short of the opinion that has been generally entertained of them. The oil of amber is rectified by distilling it over, either by itself, or with different additions, as common water, burnt bones, lime, elixated ashes, chalk, tobacco pipe clay, potash, &c. This oil has a strong bituminous smell, and a hot pungent taste; approaching more to the nature of the mineral petrolea than of the vegetable or animal distilled oils. It is sometimes given internally, in doses of ten or twelve drops, as an antihysterical and emmenagogue; and sometimes employed externally in an antihysterical, paralytic, and rheumatic liniments, or unguents.

AMBERGRIS, *Ambragrisæ*, in natural history, a marine bitumen, about the consistence of wax, of a laminated structure, as if the mass was formed by a successive apposition of matter. It is sometimes found in the waters of the sea, sometimes thrown out upon the shores, and sometimes met with in the bodies of whales and other fishes, frequently intermixed with little bones, claws of birds, and other like matters. The greatest quantities of ambergris are met with in the East Indies, about the island Madagascar, the Molucca islands, Mauritius and Neykotarres, the western Sumatra islands, about the island Borneo and Cape Comorin, near Malabar, and on the Ethiopian coast; which, from Solafa to Brana, is said to be very rich in ambergris. Pieces are sometimes met with of an extraordinary size.

Ambergris is of various colours, but the ash-grey coloured ambergris, with whitish, blackish, and yellowish streaks or specks, is accounted the best, especially when intermixed with beaks of birds, bits of cartilage, or other like matters; not that these are essential to ambergris, but they are marks of its being genuine. The best ambergris is light, like wax to the touch, crumbly, yet somewhat tenacious, so as to

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stick to the mortar or pestle; it has an agreeable smell, but no remarkable taste: it easily melts in the fire, takes flame from a candle, and burns away without intermission. Ambergris is counterfeited or adulterated with wax, resin, storax, benzoin, amber, labdanum, musk, civet, aloes wood, old decayed ash-wood, rice-meal, tree-moss, and other like substances. These abuses are easily detected. The counterfeit sorts are commonly uniform throughout, both in colour and texture, like a paste or mass of pills, which the genuine ambergris never is. The analysis of ambergris confirms the opinion that this concrete, whose origin was formerly so much disputed, is truly a bitumen of the amber kind. Ambergris is used principally as a perfume, in balsams, saffis, dentifrices, hair-powders, wash-balls, &c. It was formerly held in some esteem as a medicine, and said to possess nervine, analeptic, aphrodisiac, cephalic, and other virtues; but is at present little regarded. A tincture of it is sometimes prepared with spirit of roses. A few drops of which may be very advantageously added to any of the odoriferous waters, as hungary, lavender, &c. Common water distilled from ambergris proves considerably impregnated with its fragrance.

AMBIDEXTER, one who uses both hands alike, and with the same dexterity.

AMBIDEXTER, among lawyers, a juror who receives money from both parties for giving his verdict.

AMBIGENAL *Hyperbola*, a name given by Sir Isaac Newton, in his *Enumeratio Linearum Tertii Ordinis*, to one of the triple hyperbolas of the second order, having one of its infinite legs falling within an angle formed by the asymptotes, and the other without that angle. As let A C, C D, (plate VII. fig. 2.) be two asymptotes, and E E G F one of these hyperbolas; then if the infinite leg G E falls within the angle A C D, and the infinite leg G F without that angle, the said hyperbola is called *ambigenal*.

AMBIGUITY, in grammar and rhetoric, a defect in language, whereby words are rendered ambiguous, or capable of a double meaning.

AMBLE, or **AMBLING**, in horsemanship, a peculiar kind of pace, wherein a horse's two legs of the same side move at the same time. The ambling horse changes sides at each remove, two legs of a side being in the air, and two on the ground at the same time. An amble is usually the first natural pace of young colts, which they quit as soon as they have

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strength enough to trot: there is no such thing as an amble in the manage, the riding-masters allowing of no other paces besides walk, trot and gallop; their reason is, that a horse may be put from a trot to a gallop without such stop, which loses time, and interrupts the justness and cadence of the manage. The best way to bring a young horse to amble is to try with the hand by a gentle and deliberate racking, and thrusting the horse forwards, by helping him in the weeks of his mouth with your snaffle, which must be smooth, big, and full; and correcting first on one side, and then on the other, with the calves of your legs, and sometimes with a spur. If you can make him of himself to strike into an amble, though thrusting and disorderly, there will be much labour saved; for that aptness to amble will make him with more ease and less danger endure the travel, and find the motion without stumbling or amazement: but if you perceive he will by no means either apprehend the motions or intentions, then struggle no longer with him, but apply the travel immediately. *Newcastle's Horsemanship.*

AMBROSIA, among the ancient pagans, signified the solid food of the gods, in contradistinction to their drink, which was called nectar. They supposed that whosoever eat of it was rendered immortal.

AMBROSIA, in botany, the name of a distinct genus of plants, with sterculous flowers, divided into five segments; but the fruit, which in some measure resembles a club, grows on other parts of the plant.

AMBUSCADE, a military term, implies a body of men posted in some secret or concealed place, till they find an opportunity of falling upon the enemy by surprise.

AMEN, a solemn conclusion to the prayers of the church; and signifies so be it.

The word is Hebrew, and formed from the verb, *aman*, which in the passive voice signifies to be true, faithful, &c. There is also formed from this noun a kind of affirmative adverb, signifying truly, verily; and in this sense it is often used in the Gospels.

AMENDMENT, in law, the correction of an error committed in a process, which may be amended after judgment, unless the error lies in giving judgment; for in that case it is not amendable, but the party must bring a writ of error.

AMEND

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AMENDMENT, in a literary sense, the correction of some impropriety in the former edition of a book.

AMENTACEOUS, in botany, an epithet applied to such flowers as have an aggregate of stamens hanging down in the form of a rope or cat's-tail.

AMERCEMENT, or **AMERCIA-MENT**, in law, a pecuniary punishment imposed on offenders at the mercy of the court. It differs from a fine in being imposed arbitrarily in proportion to the fault; whereas a fine is a certain punishment settled expressly by some statute.

* **AMERICA**, is bounded on all sides by the ocean; and is called one of the four parts or quarters of the world; but it is much the largest. It was first discovered by Christopher Columbus, a Genoese, in 1491, and was called America from Americus Vesputius, a Florentine, who made some farther discoveries of the south part of that continent. It is about seven thousand miles long, and in some places three thousand six hundred and eighty broad, in others not above sixty. It has been long disputed which way this part of the world came to be peopled, concerning which there are various conjectures, most of which are very wide of the truth. The difficulties arise from hence: All the people, except those of the north, are of a kind of copper colour; they have no hair on any part of their bodies, except the head, which is long and black. It was formerly said that they plucked off their beards by the roots as fast as it grew, but this is denied by those who have lived among them. They speak a vast number of languages, but none of them have any affinity with those which we are acquainted with. Their animals are generally different from those in other parts, though called by the same names: for instance, the American ostrich has three toes, one of which grows backward; whereas the Asian and African ostrich has only two toes before, and none backwards, besides other material differences. At its discovery it had no horses, cows, hogs, goats, sheep, &c. so common in all other parts. The air of America must be various, because it lies under all the different zones, and has consequently all the variations of climate that are to be found in all the other parts of the earth. The same may be said with respect to the soil; but if we except the northern and southern countries, which from their situation are cold

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and barren, the rest produces most of the metals, gems, trees, plants, and fruits, that are to be found in the other parts of the world, and some of them in greater abundance, and higher perfection. Thus the gold and silver of America have been brought in such quantities to Europe, as to lower the value of those precious metals; and the same may be said of its diamonds, pearls, emeralds, amethysts, and other gems. To these may be added a variety of other commodities, which though esteemed less valuable, are of much greater use, such as cochineal, brazil, logwood, indigo, annatto, fustic, chocolate nut, sugar, rice, pimento, ginger, tobacco, cotton, the balsams of Tolu, Peru, and China, sarsaparilla, saffras, Jesuits bark, mechacan, cassia, tamarinds, lignum vitæ, ambergris, hides, furs, and a great variety of beautiful and medicinal woods, roots, and plants; to which, before the discovery of America, we were either entire strangers, or forced to buy at an extravagant rate from Asia and Africa. In America, a variety of the most excellent fruits grow wild in the greatest perfection; and the soil is so surprisingly fertile, that many exotic plants flourish there in as great perfection as in their native soil. Yet, notwithstanding this amazing plenty and variety, at the first discovery of this vast continent, our kind of sheep, goats, asses, and horses, were not to be found there; but these have since been brought thither, and in those fertile pastures have increased so fast, that the inhabitants are well stocked with them, but, in the room of these domestic animals, they had many others to which we were utter strangers. America has two principal gulphs, that of St. Lawrence to the north-east and that of Mexico, in which is the mouth of the river Mississippi. There are four famous rivers; the Amazons, the Plata, which rises in Peru, near a town of the same name; the river St. Lawrence, which traverses Canada from the south-west to the north-east, passes by Quebec, and falls into the gulph of St. Lawrence; and the Mississippi, which runs from the north to the south, and falls into the gulph of Mexico. The most considerable chain of mountains in South America is the Andes, which is the highest and longest chain of mountains in the world. In North America, are the Aligany mountains, which some have called the Apalachian; they run on the back of the British settlements, from Carolina to New York.

America

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America is divided into,

I. The dominions of Great-Britain, which contain the countries about Hudson's Bay, Canada, Nova Scotia, New England, New York, the Jerseys, Pennsylvania, Maryland, Virginia, Carolina, Georgia, East and West Florida, on the continent; with the islands of Newfoundland, Cape Breton, St. John's, Providence, Jamaica, St. Christopher's, Antigua, Nevis, Dominica, Barmuds, Anguilla, Montserrat, Tobago, St. Vincent, Barbadoes, Granada, and the Granadillos, &c.

II. The dominions of Spain contain Louisiana, Old Mexico, New Mexico, and California, in North America; the extensive countries of Terra Firma, Peru, and Paraguay, in South America; with the valuable islands of Cuba, half of St. Domingo or Hispaniola, Porto Rico, Trinidad, and Margarita, in North America; Chiloe, the King's or Pearl islands, Juan Fernandes, and the Gallapagos islands in the Pacific Ocean.

III. The dominions of France consist of only part of Guiana in South America, and the islands of Martinico, Guadaloupe, half of Hispaniola, Marigalante, Desadea, St. Bartholomew's, and St. Martin's.

IV. The dominions of Portugal consist of the rich and extensive country of Brazil, in South America.

V. Those of the Dutch consist of Surinam, on the continent of South America; the islands of Curassao, Bonaire, and Aruba, near the coast of Terra Firma, with St. Eustatia and Sala, two of the Caribbee islands.

VI. Those of the Danes, which consist of the islands of St. Thomas and St. Croix.

VII. The parts still in the possession of the native Indians are the countries to the north and the west of our colonies, those north-west of Mexico, the greatest part of Guiana, and all the most southern part of the continent, as Patagonia, and the island Terra del Fuego.

AMETHYST, *Amethystus*, in natural history, a gem, or precious stone of a purple colour, resembling a violet, and sometimes fading to a pale rose-colour. Sometimes it is found colourless, and may at any time be made so by exposing it to the fire; in which pellucid, or colourless state, it so nearly imitates the diamond, that even jewellers themselves are often deceived, it wanting nothing but the hardness to render it equal to that gem. They are found in India, Arabia, Armenia, Ethiopia, Cyprus, Germany, Bohemia, and Misnia; but as they are ge-

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nerally as soft as crystals, they are not in very great esteem. The oriental are hardest; if they are without spots, they are of the greatest value. They are found of various sizes, and in various shapes, from the bigness of a small pea, to an inch and a half in diameter. They are adulterated with mastic, tinged of a violet colour, placed between two crystals.

AMETHYST, in heraldry, is a term used for a purple colour in the coat of a nobleman.

AMIALE, or **AMICABLE** Numbers, in arithmetic, are such as are equal to the sum of each other's aliquot parts. Thus the numbers 284 and 220 are amicable numbers; for the aliquot parts 1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110, of 220, are together equal to the other number 284; and the aliquot parts 1, 2, 4, 71, 142, of 284, are together equal to 220.

AMIANTHUS, in natural history, vulgarly called earth-flax, is a fibrous, flexible, and mineral substance, composed of short and abrupt filaments. It is a stony concrete, of the talky kind, though differing from tale in its external appearance. It is not near so bright, or so smooth or unctuous; and composed not of leaves or plates, but of long filaments like flax: it has been spun into cloth, and formed into paper, incombustible and indestructible in the fire. There are some sorts of amianthus whose filaments are rigid and brittle, others more flexible: the first are not at all to be spun or formed into cloth; and the latter with very great difficulty. This manufacture appears to have been known among the ancients, who, according to Pliny, wrapt the corpse of the dead in amianthin clothes, to preserve their ashes separate from those of the funeral pile; an use to which they are still said to be applied among the princes of Tartary.

AMICITIA, in the feudal customs, were lands granted to be enjoyed only so long as the donor pleased.

AMIDSHIPS, amongst seamen, the middle of the ship, either with regard to her length or breadth.

AMMI, bishops weed, in botany, a distinct genus of umbelliferous plants, the flower of which is rosaceous, composed of heart-like petals; and its fruit a small roundish and striated capsule, containing two striated seeds, convex on one side. The seeds of this plant have been long known in the shops as one of the less hot seeds, and esteemed aromatic, aperitive, carminative, and alexipharmic.

AMMO-

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AMMODYTES, the sand serpent, in natural history, the name of a serpent found in different parts of the world, particularly in the torrid zone, and so called from its burying itself in the sand. This serpent resembles the viper, except in its head and jaws, which are much larger. It is about two feet in length, and of a sandy colour. On the external part of its upper jaw there is an eminence resembling a wart, whence it has also been called the horned serpent. The ammodytes of Ceylon is a very large and dangerous serpent, with a mouth full of sharp teeth. The eyes are large and sparkling, and the forehead is covered with small round scales, some of which are yellow, others red and speckled with black. On each side of the eyes are black stripes reaching to the neck; but the body, above and below, is of a whitish ash-colour; and on the back are angular spots variegated with white and brown. The scales that cover the upper part of the body, are placed like net-work, with large meshes, and the tail is spotted with brown, ending in a bony point. The ammodytes of Surinam is a serpent which the negroes have in high esteem, and they think themselves very happy if they come into their huts; their colours are so many and beautiful, that they surpass description.

AMMON, in mythology, the name of the Egyptian Jupiter, worshipped under the figure of a ram. Bacchus, having subdued Asia, and passing with his army through the deserts of Africa, was destitute of water; but Jupiter, his father, assuming the shape of a ram, led him to a fountain, where he refreshed himself and his army: in requital of which favour, Bacchus built there a temple to Jupiter, under the title of Ammon, from the Greek *αμμος*, which signifies sand, alluding to the sandy desert where it was built. This is the poetical account: it is however more probable that the Egyptians worshipped the sun under this name; for *hammah*, in Hebrew, signifies the sun; or perhaps they meant it by Ham, the son of Noah, whose posterity settled in Libya.

Cornu AMMONIS, in natural history; see the article *CORNU Ammonis*.

AMMONIACUM, or *Gum AMMONIACUM*, in the materia medica, a concrete gummy resinous juice brought from the East-Indies, and generally in large masses.

Both the plant which produces ammoniacum, and the place of its production, are unknown. The best ammoniacum is composed of white, whitish, or yellowish

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tears baked into masses: the internal parts particularly are whitish, by age it becomes more and more yellow and brown. It easily softens and becomes tough betwixt the fingers. Chewed, it discovers a bitterish, glutinous, not disagreeable, taste. Its smell approaches to that of a mixture of opopanax and galbanum; some resemble it to that of castor, others to that of coriander-seeds, and others to that of garlic.

It dissolves almost equally in water and spirit; is accounted deobstruent; promotes urine; and, in large doses, opens the belly. It is given particularly in obstructions of the breast, in cachectic, isdropic, and apoplectic cases, from a scruple to half a dram. It operates more effectually in a liquid form, as that of an emulsion, than in the solid one of pills; but is most commodiously taken in the latter form. It is sometimes dissolved in vinegar: externally it resolves hard swellings. It is purified by dissolving it in vinegar, wine, or water, and straining and inspissating the solution.

AMMONITÆ, in natural history, the same with *cornu ammonis*. See *CORNU Ammonis*.

AMMUNITION, in military affairs, a general name for powder, balls, &c.

AMMUNITION Bread, Shoes, &c. such as are served out to the soldiers of an army, garrison, &c.

AMNESTY, in civil policy, an act, whereby two parties at variance mutually promise to pardon and bury in oblivion all that is past. In a more limited sense it signifies a pardon granted by a prince to his subjects, by which the former promises to forget and annul all that is past.

AMOMUM Verum, true amomum, in the materia medica, a cluster of round fruits, or seed vessels, of an oriental plant. The seeds of amomum are a strong and grateful aromatic, of a quick penetrating fragrant smell, somewhat like that of lavender, but more agreeable, and of a very warm pungent taste, approaching to that of camphor. The husks have the same kind of flavour in a lower degree. These seeds have long been a stranger to this country.

AMOMUM Vulgare, bastard stone parsley, in the materia medica. It grows wild under moist hedges, and by the sides of ditches; flowers in June and July, and ripens its seeds in August. The seeds of the amomum vulgare have a light agreeable smell, and a mild warm aromatic taste. They have been sometimes given as carminatives and diuretics, like the other warm

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warm seeds, and usually substituted in the shops for those of the *amomum verum*, from which, however, they are very considerably different in quality, as well as in appearance: they are not near so hot or pungent, nor is their flavour of the same kind. These seeds, infused in water, give out very little of their virtue: but in distillation with water they yield a small portion of a yellowish essential oil, which tastes and smells strongly and agreeably of the seeds.

Rectified spirit readily extracts their virtue. The extract tastes strongly, and smells lightly of the *amomum*, and proves a moderately warm, bitterish, not ungrateful, aromatic.

* **AMPHIARAUS**, in Pagan mythology, a celebrated prophet, who possessed part of the kingdom of Argos. He was supposed to excel in divining by dreams, and is said to be the first who divined by fire. Amphiarus knowing, by the spirit of prophecy, that he should lose his life in the war against Thebes, hid himself, in order to avoid engaging in that expedition; but his wife Eriphyle, being prevailed upon by a present of a necklace, discovered the place in which he had concealed himself; so that he was obliged to accompany the other princes who marched against Thebes, which proved fatal to him; for the earth being split asunder by a thunder bolt, both he and his chariot were swallowed up in the opening. When he set out on this expedition, he was so provoked at his wife, that he enjoined his children to put her to death as soon as their age would allow them, which was accordingly performed by Alcmeon. Amphiarus, after his death, was ranked among the Gods; temples were dedicated to him; and his oracle, as well as the sports instituted to his honour, were very famous.

AMPHIBIOUS, in natural history, an epithet applied to such animals as live part of their time on the land, and part in the water. Linnæus has made a class of amphibious animals; the first order of which contains the tortoise, the frog, the crocodile, the lizard, salamander, theameleon, the scine, &c. and the second the serpents.

AMPHIBRACHYS, in the Greek and Latin poetry, a foot consisting of three syllables, one long and the other two short, the former being in the middle, and the others forming the two extremities.

AMPHICTYONS, in antiquity, the deputies sent from the different states of Greece, to Thermopil, where they met regularly twice a year, in the temple of Ceres, built in a large plain near the

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river Asophus. They decided all differences that happened between any of the cities of Greece, and their decisions were held sacred and inviolable. They had their name from Amphictyon III. king of Athens, who first established an assembly of Amphictyons, in order to unite the Greeks more firmly together, and render them a terror to the barbarous nations in their neighbourhood.

* **AMPHIOCLEES**, in Pagan mythology, the son of Amphiarus and Eriphyle, was both a king and a prophet, for he reigned at Argos; but not being able to maintain himself in that kingdom, he built a city in the bay of Ambraccia; but his brother Mopsus and he quarrelling, they killed each other in a duel. Amphioeles had an altar erected to him at Athens, which did not contribute so much to the glory of his name, as an oracle he had at Mallus in Cilicia.

* **AMPHION**, in fabulous history, the son of Jupiter and Antiope, he played so well on the lyre, that the rocks were said to follow him, and the stones moved by his harmony, ranged themselves in order, and formed the walls of Thebes. He married Niobe, whose insult to Diana occasioned the loss of their children; when the unhappy father, filled with despair, attempted to destroy the temple of Apollo, but was punished by the loss of his sight and skill, and cast into the infernal regions.

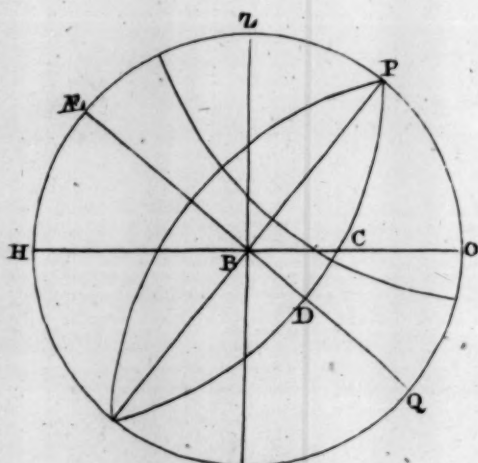
AMPHIPOLES, in antiquity, the principal magistrates of Syracuse. They were established by Timoleon in the eighth Olympiad, after the expulsion of the tyrant Dionysius. They governed Syracuse for the space of three hundred years; and Diodorus Siculus assures us, that they subsisted in his time.

AMPHISBÆNA, in natural history, a kind of serpent, found in hot climates, and so called because it moves with either end forward.

AMPHISCII, in geography, a name applied to those people who inhabit the torrid zone: because their shadows point one part of the year towards the north, and the other towards the south.

AMPHITHEATRE, in antiquity, a spacious edifice of a circular or oval form, with rising seats, on which the people sat to behold the combats or gladiators, wild beasts, and other sports. Amphitheatres were originally built of wood; and Statilius Taurus, in the reign of Augustus, was the first who erected one of stone. The lowest part was called *archa*, from its being generally strewed with sand, for the convey-





Amplitude. Fig. 1.

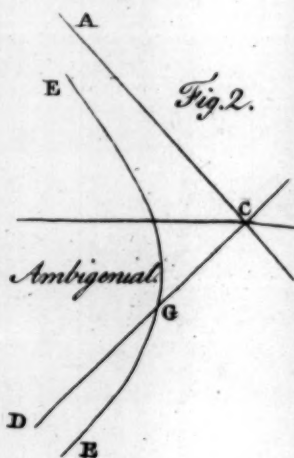


Fig. 2.

Astronomical Sector.

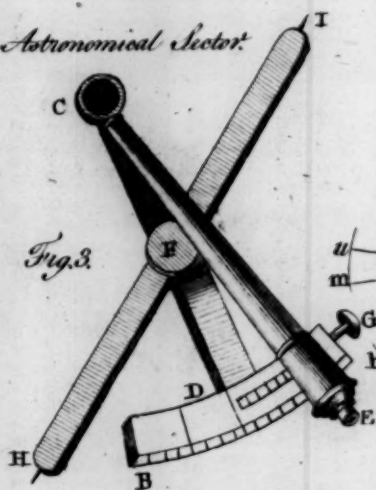
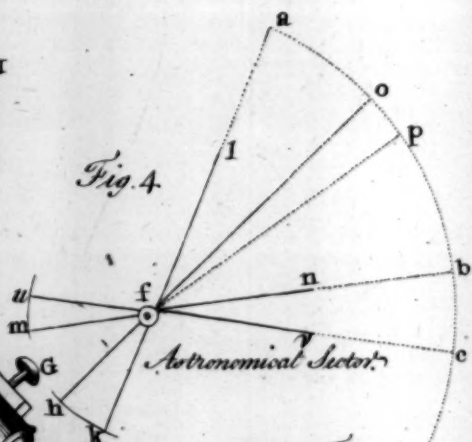


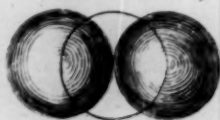
Fig. 3.

Fig. 4.



Astronomical Sector.

Fig. 5.



Attraction.

Axis in Peritrochio.

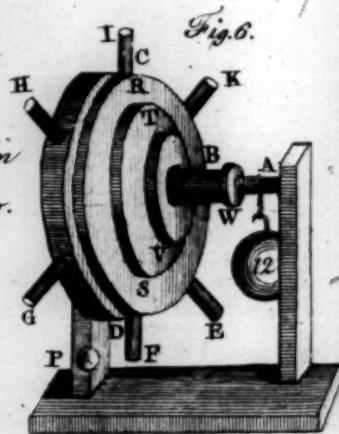


Fig. 6.

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venience of the combatants; and round the arena were vaults, in which the wild beasts, appointed for the shews, were contained. Above these cells was erected a large circular peristyle, for accommodating the emperors, senators, and other persons of distinction. Over the peristyle were the rows of benches, which were entered by avenues terminated by gates called vomitoria.

AMPHITRITE, in mythology, a goddess of the sea, the daughter of Ocean and Doris, and wife of Neptune. She at first refused the addresses of Neptune, and resolved to preserve her virginity; but he sent a dolphin in search of her, who found her at the foot of Mount Atlas, and persuaded her to marry the god of the sea. Two of the Nereides were also called by this name.

AMPLIFICATION, in rhetoric; see EXAGGERATION.

AMPLITUDE, in astronomy, an arch of the horizon, intercepted between the true east or west point thereof, and the center of the sun, or a star, at its rising or setting; the former is called the eastern or ortive, and the latter the western or occiduous amplitude. The eastern and western amplitude are also called northern and southern, as they fall in the northern and southern quarters of the horizon. To find the amplitude trigonometrically, by having the latitude of the place and declination of the sun given: let $H \cdot O$ (plate. VII. fig. 1.) represent the horizon, P the north and S the south pole; $A \cdot Q$ the equator, Z the zenith, and N the nadir, and the primitive circle $HPOS$ a meridian; then will B be the east or west point of the horizon; and if C represent the center of the sun, or of a star, at its rising, the arch $B \cdot C$ will be the amplitude required. Suppose the latitude $50^{\circ} 30' N$. and the sun's declination $21^{\circ} 00'$; then in the right angled spherical triangle $B \cdot D \cdot C$, right angled at D , are given the perpendicular $D \cdot C =$ the sun's declination $= 21^{\circ}$, and the angle $D \cdot B \cdot C =$ the arch $O \cdot Q =$ the comp. lat. $= 39^{\circ} 30'$ to find the hypotenuse $B \cdot C$; which will be found by the following proportion.

As the sine of the angle $D \cdot B \cdot C = 39^{\circ} 30'$ 9.803510
To radius $90^{\circ} 00'$ 10.000000
So is the sin. of $D \cdot C$, the sun's dec. $= 21^{\circ} 00'$ 9.554329
To the sin. of $B \cdot C$, the amp. 9.752819
req. $= 34^{\circ} 18'$

Magnetical AMPLITUDE is an arch of the horizon contained between the cen-

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ter of the sun at his rising or setting, and the east or west point of the compass. It is found by an amplitude or azimuth compass, by observing the sun at his rising or setting, and is always equal to the difference between the true amplitude, and the variation of the compass.

AMPLITUDE of the range of a projectile, denotes the horizontal line subtending the path in which it moves. See PROJECTILE.

AMPLITUDE Compass, in navigation, an instrument more exactly calculated to observe the sun's magnetical amplitude than the common sea-compass. See AMPLITUDE COMPASS.

AMPUTATION, in surgery, the operation of cutting off a limb or other part of the body.

Manner of AMPUTATING a Limb, from *Shope's Treatise on Surgery*.—Lay your patient on a table, three feet four inches high, which is much better than a low seat, both for securing him steady, and giving yourself the advantage of operating without stooping, which is not only painful but inconvenient in the other situation. While one of your assistants holds the leg, you must roll a slip of fine rag, half an inch broad, three or four times round it, about four or five inches below the inferior extremity of the patella; this being pinned on is to serve as a guide to the knife, which without it, perhaps, would not be directed so dexterously; the manner of rolling has always been perpendicular to the length of the leg; but having observed, that though the amputation at first be even, yet afterwards the gastrocnemius muscle, contracting, draws back the inferior part of the stump more strongly than the other muscles can do the rest of it; I have lately, in order to preserve the regularity of the cicatrix, allowed for this excess of contraction, and made the circular incision in such a manner, that the part of the wound which is on the calf of the leg, is farther from the ham than that on the shin is from the middle of the patella.

In the mean time, one of your assistants must carry a strong ligature round the thigh, about three or four inches above the patella, which, passing through a couple of slits in a square piece of leather, he must twist with a tourniquet, till the artery is sufficiently compressed, to prevent any great effusion of blood; and, to do it more effectually, he may lay a bolster of tow or linnen under the ligature, upon that part where the artery creeps.

The course of the blood being stopped, you must begin your incision just below the

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linen roller, on the under part of the limb, bringing your knife towards you; which, at one sweep, may cut more than the semi-circle: then, beginning your second wound on the upper part, it must be continued from the one extremity to the other of the first wound, making them but one line. The incisions must be made quite through the membrana adiposa, as far as the muscles; then taking off the linen roller, and an assistant drawing back the skin as far as it will go, you make your wound from the edges of it, when drawn back, through the flesh to the bone, in the same manner as you did through the skin. Before you saw the bones, you must cut the ligament between them with the point of your knife: and the assistant, who holds the leg while it is sawing, must observe not to lift upwards, which would clog the instrument.

In amputating below the knee, it is of advantage to stand on the inside of the leg, because the tibia and fibula lie in a position to be sawed at the same time, if the instrument be applied externally: whereas, if we lay it on the inside of the leg, the tibia will be divided first, and the fibula afterwards; which not only lengthens the operation, but is also apt to splinter the fibula when it is almost sawed through, unless the assistant be very careful in supporting it.

When the leg is taken off, the next regard is to be had to the stopping of the blood, which must be effectually done before the patient is put to bed, or there will be great danger of bleeding again, when the fever is excited, and the vessels of the stump dilated; both which happen a very little while after the operation. There is no method for this purpose so secure as tying the extremities of the vessels with a ligature, which, with a crooked needle passed twice through the flesh almost round them, will, when the knot is made, necessarily inclose them in the stricture; and to discover the orifice of a vessel, your assistant must every time loosen the tourniquet; this is a much better way than using the artery forceps, where the vessels are apt to slip away out of the ligature; and as to styptic applications, their want of safety is so well known now, that the use of them, in hæmorrhages from large vessels, is almost universally rejected.

It sometimes happens in a large stump, that ten or more vessels require tying: which done, you must apply loose dry lint to the wound, or, in case the small vessels bleed plentifully, you must throw a hand-

ful of flour among the lint, which will contribute to the more effectual stopping up their orifices. Before you lay on the pledget, you must bind the stump, and begin to roll from the lower part of the thigh down to the extremity of the stump. The use of this roller is to keep the skin forwards, which, notwithstanding the steps already taken to prevent its falling back, would in some measure do so, unless sustained in this manner. The dressings may be secured by the cross cloth and gentle bandage; and the method of treating the wound must be the same as that for other recent and incised wounds. See WOUND.

Before the invention of making the double incision I have just now described, the cure of a stump was always a work of time; for by cutting down to the bone at once, and sawing it directly, the consequence was, that the skin and flesh withdrew themselves, and left it protruding out of the wound two or three inches in some cases; so that it rarely happened that an exfoliation did not follow; which, besides being tedious, also frequently reduced the wound to an habitual ulcer, and at best left a pointed stump, with a cicatrix ready to fly open upon the least accident; all which inconveniences are avoided by this new method, and I know not of any objection to it, unless that the pain of making the wound is supposed to be twice as much as in the other, because of the double incision; but when we consider that we only cut the skin once, and the flesh once, though not in the same moment, I fancy, upon reflection, the difference of pain will be thought inconsiderable.

In amputating the thigh, the first incision is to be made a little more than two inches above the middle of the patella; after the operation, a roller should be carried round the body, and down the thigh, to support the skin and flesh. This is also the most proper bandage, as abscesses will sometimes form in the upper part of the thigh, which cannot discharge themselves so conveniently with any other, it being almost impracticable to roll about the abscess, unless you begin from the body.

The amputation of the arm and cubit differs so little from the foregoing operations, that it will be but a repetition to describe it. However, it must be laid down as a rule, to preserve as much of the limb as possible, and, in all amputations of the upper limbs, to place your patient in a chair.

There are, in armies, a great many instances of gun-shot wounds of the arm, near the scapula, which require amputation

tion at the shoulder; but the apprehension of losing the patients on the spot by the hæmorrhage, has deterred surgeons from undertaking it. I have heard of its having been done once; but though it had never been performed, we might learn it is practicable from the case of a poor miller, whose arm and scapula were both torn from his body by a rope, which was accidentally twisted round his wrist, and suddenly drawn up by the mill. The poor man recovered in a few weeks. It is remarkable in this accident, that after fainting, the hæmorrhage stopped of itself, and never bled afresh, though nothing but lint and turpentine were laid on the great vessels. In case, therefore, of a wound or fracture near the joint, or incurable fistulas in the joint, not attended with much caries, I think the operation may be performed safely in this manner: The patient's arm being held horizontal, make an incision through the membrana adiposa, from the upper part of the shoulder, across the pectoral muscle down to the armpit; then, turning the knife with its edge upwards, divide that muscle, and part of the deltoid; all which may be done without danger of wounding the great vessels, which will become exposed by these openings; if they be not, cut still more of the deltoid muscle, and carry the arm backward; then with a strong ligature having tied the artery and vein, pursue the circular incision through the joint, and carefully divide the vessels at a considerable distance below the ligature; the other small vessels are to be stopped as in other cases.

In performing this operation, regard should be had to the saving as much skin as possible, and to the situation of the process acromion, which projecting considerably beyond the joint, an unwary operator would be apt to cut upon it.

The amputation of the fingers and toes is better performed in their articulation, than by any of the other methods: for this purpose a straight knife must be used, and the incision of the skin be made not exactly upon the joint, but a little towards the extremity of the fingers, that more of it may be preserved for the easier healing afterwards; it will also facilitate the separation in the joint, when you cut the finger from the metacarpal bone, to make two small longitudinal incisions on each side of it first. In these amputations there is generally a vessel or two that require tying, and which often prove troublesome when the ligature is omitted.

It may happen that the bones of the toes, and part only of the metatarsal bones,

are carious, in which case the leg need not be cut off, but only so much of the foot as is disordered; a small spring-saw is better to divide with here than a large one. When this operation is performed, the heel and remainder of the foot will be of great service, and the wound heal up safely, as I have once found by experience. *Sharp's Surgery.*

AMSDORFIANS, in ecclesiastical history, a sect of protestants who appeared in the sixteenth century, and acquired the name from one Amisdorf their leader. They maintained that good works were so far from being profitable, that they were even pernicious, and obstacles in the road to salvation; a doctrine too much like that of some of our modern enthusiasts.

* AMSTERDAM, the capital city of the province of Holland, and the United Netherlands, it is seated on the river Amstel and an arm of the sea called the Wye. It is a very large trading city, and may be called the magazine of the universe. However, the air is but indifferent, which proceeds from the marshes that surround it, and render it almost inaccessible; but this inconvenience is abundantly recompensed by the utility of its commerce, which its port serves greatly to promote; for it will contain above a thousand large ships. Amsterdam, being seated in a marshy soil, is built on piles of wood, for which reason no coaches are allowed, except to great men and physicians, who pay a tax for that privilege; and all kinds of goods are drawn on sledges; and it stands so low, that they would be exposed to inundations, if they did not secure themselves by dikes and sluices. The finest streets are, the Keyser's Graft, or Emperor's Canal; the Heer Graft, or Lords Canal; the Cingel; and the street of Haerlem. The principal canal is remarkable for its houses, which are magnificent structures, of an equal height. There are three prodigious sluices, and a great number of stone bridges over the canals, which cross the city in many parts, and render the streets clean and pleasant. The canals are deep, their sides are lined with hewn stone, and have generally rows of trees planted on each side. The public buildings are very magnificent. The stadthouse was begun to be built in 1648; it is founded upon fourteen thousand wooden piles, and its front is two hundred and eighty two feet long, its sides two hundred and fifty-five feet, and its height to the roof one hundred and sixteen. There is a marble pediment in the front, whereon a woman is carved in relieve, holding the

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arms of the city; she is seated in a chair, supported by two lions, with an olive-branch in her right hand; and on each side are four Naiads, who present her with a crown of palm and laurel; and two other marine goddesses present her with all manner of fruit; besides, there is Neptune with his trident, accompanied with Tritons, a sea-unicorn, and a sea-horse. On the top stands three statues in bronze, representing Justice, Strength, and Plenty. On the top of the structure is a round tower, fifty feet above the roof, adorned with statues, and an harmonious chime of bells, the largest of which weighs about seven thousand pounds, and the next six thousand; they are made to play different tunes every month. It has no handsome gate, but only seven doors to answer to the number of the United Provinces. On the floor of the great hall are represented two globes, the celestial and terrestrial, which are twenty-two feet in diameter, and sixty-nine in circumference; they are made of black and white marble, and are inlaid with jasper and copper. In general, all the chambers are enriched with paintings, carvings, and gildings. While this stadthouse was building, the old one was set on fire, and consumed with all the archives and registers. Under the stadthouse is a prodigious vault, wherein is kept the bank of Amsterdam, where there is a vast quantity of ingots both of gold and silver, as also bags, which are supposed to be full of money. The doors are proof against petards, and are never opened but in the presence of one of the burgo-masters. The prisons for debtors and criminals are likewise under the stadthouse; as also the guard room for the citizens, wherein the keys of the city are locked every night. At the end of the great hall is the schepens or aldermens chamber, where civil causes are tried. Besides these, there are the chambers of the senate and council, the burgo-masters chamber, the chambers of accounts, &c. In the second story is a large magazine of arms; and on the top of the building are six large cisterns of water, which may be conveyed to any room in the house in case of fire, to prevent which the chimnies are lined with copper. The bourse, or exchange, where the merchants assemble, is all of free-stone, and built upon two thousand wooden piles; its length is about two hundred feet, and its breadth one hundred and twenty-four; the galleries are supported by twenty-six marble columns, upon each of which are the names of the people that are to meet there; they are all numbered, and there

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is a place fixed for every merchandise under some one of these numbers. On the right hand of the gate is a superb staircase, which leads to the galleries, on one side of which there are several shops, and on the other a place to sell clothes. It is not unlike the royal exchange in London. The house belonging to the East-India company contains large magazines, full of the different sorts of commodities brought from the East-Indies.

AMULET, a charm or preservative against mischief, witchcraft, and diseases. The ancients of all nations were extremely fond of amulets; but the present philosophy has pretty well banished these and other impositions of the same kind from the world.

* **AMYMONE**, in fabulous history, the daughter of Danaus, who, as she was shooting in the woods, wounded a satyr, who upon this attempted to ravish her; but imploring the aid of the Gods, Neptune came to her assistance, saved her from the satyr, but despoiled her himself, and by him she had Nauplius.

ANA, among physicians, denotes an equal quantity of the ingredients that immediately precede it in prescription.

ANABAPTISTS, in ecclesiastical history, a sect of protestants that sprung up in Germany about the year 1521; just after the reformation of Luther. They at first preached up an entire freedom from all subjection to the civil power; but their principal tenet, and that from whence they take their name, consists in re-baptizing all converts to their sect, and condemning infant-baptism. The fanaticism of this sect rose to an amazing height, and many places suffered severely, particularly the town of Munster, which they seized; and one John of Leyden, the king of this New Jerusalem, defended himself in it as long as possible; but the place was at length taken, and that ringleader of the anabaptists put to death in the year 1536. They were, however, some time after pretty well cured of their principal errors; so that they no longer pretended to inspiration; no longer opposed magistrates; nor preached up a freedom from all subjections, a community of goods, and the like. They supported their principal tenet from the following words of our Saviour, "He that believeth, and is baptized, shall be saved." Now, as adults alone are capable of believing, they argued, that adults only were fit to be baptized. Calvin, and other writers against them, had recourse to the practice of the primitive church, which is clearly on the side of infant baptism.

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tism. It may be necessary to add, that the anabaptists of England are not included in the above description; for except their rejecting infant-baptism, they differ very little from the other protestant dissenters, as may be seen in a Confession of Faith, published in the year 1689, by the representatives of their congregation.

ANACAMPSEROS, *Orpine*, *Live-ever*, or *Rose-rose*, in botany, the name of a plant. It is never given now inwardly, and but seldom employed outwardly, tho' it is said to heal fresh wounds, and cleanse ulcers. The juice is, however, commended by Hoffman against ulcers of the womb.

ANACARDIUM, the name of two species of trees, distinguished by the epithets *occidentale* and *orientale*. They are both of the class of the *Pruniferae* of Mr. Ray.

ANACARDIUM Occidentale is the fruit of the acajou or cashew nut-tree.

ANACARDIUM Orientale is the fruit of a large tree found only in the East-Indies.

ANACATHARTICS, medicines that promote an anacatharsis, or discharge of noxious humours either by vomit or spitting.

ANACORETS, or **ANCHORETS**, in ecclesiastical history, a sort of monks in the primitive Christian church; so called from their retiring from society, and living in private cells in the wilderness. Such were Paul and Anthony, and Hilarion, the first founders of the monastic life in Egypt and Palestine. Some of them lived in caves, and St. Chrysostom tells us the monks of Mount Casius, near Antioch, did; and others in little tents or cells.

ANACHRONISM, an error in chronology, whereby an event is placed earlier than it really happened; but it is often used to imply any chronological mistake.

* **ANACREON**, a very excellent Greek poet, born at Teos, a city of Ionia, lived about five hundred and thirty-two years before the Christian era. Polycrates, tyrant of Samos, invited him to his court, and made him share with him in his business and his pleasures. He had a delicate wit, as may be judged from the inexpressible beauties and graces in his works; he was very fond of pleasure; was of an amorous disposition, and addicted to drunkenness; yet notwithstanding his debaucheries, he lived to the age of eighty-five. We are told, that in his old age he lived upon dried grapes, and that he

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was at last choaked by a grape stone sticking in his throat. His poems, which are extant, were rescued from oblivion by Henry Stevens, and are universally admired. His beauty and chief excellence, says Madam Dacier, lay in imitating nature, and in following reason, so that he presented to the mind no images but what were noble and natural. The odes of Anacreon, says Rapin, are flowers, beauties, and perpetual graces; it is familiar to him to write what is natural and to the life, he having an air so delicate, so easy, and so graceful, that among all the ancients there is nothing comparable to the method he took, nor to that kind of writing he followed. He flows soft and easy, every where diffusing the joy and indolence of his mind through his verse, and tuning his harp to the smooth and pleasant temper of his soul.

ANACREONTIC Verse, in ancient poetry, a kind of verse so called from its being invented, by the poet Anacreon. It consists of three feet and a half, usually spondee and iambuses, and sometimes of anapests.

ANADIPLOSIS, in rhetoric and poetry, implies a repetition of the last word of a line, or a close of a sentence, in the beginning of the next. As the following verses of Virgil:

*Sit Tityrus, Orpheus,
Orpheus in sylvis, &c.*

ANADIPLOSIS, among physicians, implies the return of the cold, fit in a semi-tertian ague, before the fit is entirely ended.

ANAGALLIS, *Pimpernel*, in botany, the name of two species of plants resembling chickweed, and distinguished by the epithets *mas* and *femina*.

ANAGALLIS Mas, male pimpernel, has a white single root, with a few fibres, its stalks lie on the ground, and its flower is of a purple red colour. It is one of the sleeping plants, or those whose flowers open about eight o'clock in the morning, and close again soon after noon.

ANAGALLIS Femina, female pimpernel, differs only from the former in the colour of the flower, which is blue, and in being more scarce than the former, which is common in our corn-fields. The male pimpernel is used as a salad and a pot-herb in many parts of England; tho' it is by some recommended as an excellent medicine against madness and the epilepsy, provided four ounces of the juice be given thrice a-day; but it is not now depended upon for any such purpose.

ANAGRAM

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ANAGRAM, a transposition of the letters of some name, whereby a new word is formed from the same letters, to the advantage or disadvantage of the person named.

ANAGRAMATIST, a composer of anagrams.

ANAITIS, in mythology, a pagan goddess particularly worshipped by the Armenians. The greatest men in the country dedicated their daughters to her service, who thought it an honour to prostitute themselves to all those who came to sacrifice to this false deity; after which they were eagerly courted in marriage, as being thought to have acquired an extraordinary sanctity thereby. Upon the festival of this idol, the men and women met in crowds together, and intoxicated themselves with wine. The reason of the institution of the festival was this: Cyrus having undertaken an expedition against the Sacæ, and being beaten, fled with his army; but afterwards encamping in the place where he had left his baggage, he refreshed his army, and then counterfeited a flight. The Sacæ, pursuing him, and finding the enemy's camp deserted, but replenished with wine and provisions, eat and drank till they had quite intoxicated themselves. Cyrus returning, slew them all, and consecrated that day to the goddess.

ANALEMMA, a very ancient astronomical instrument, the construction of which consists of an orthographic projection of the sphere upon the plane of the meridian, together with a moveable horizon and index. Its use is for finding the time of the sun's rising and setting, the length of the longest day in any latitude, and the hour of the day. The analemma is also of use among dialists, for delineating the various sorts of furniture upon solar dials. See **PROJECTION** of the sphere, and **DIALLING**.

ANALEPTICS, in pharmacy, such medicines as are proper for nourishing the body when weakened.

ANABOGICAL, belonging to, or partaking of the nature of analogy. An analogical syllogism is that which is founded on the analogy between the premises.

ANALOGY, a certain relation subsisting between two or more things, which in other respects are entirely different.

ANALOGY, among mathematicians, portion, or a similitude of ratios. See **PROPORTION** and **RATIO**.

ANALOGY, in grammar, the correspondence which a word or phrase has

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to the genius and received forms of a language.

ANALYSIS, in a general sense, implies the resolution of something compounded into its original and constituent parts.

ANALYSIS, in mathematics, the method of resolving problems by means of algebraical equations, whence we often find that these two words *analysis* and *algebra* are used as synonymous.

Analysis, under its present improvements, must be allowed the apex or height of all human learning; it is this method which furnishes us with the most perfect examples of the art of reasoning, gives the mind an uncommon readiness at deducing and discovering, from a few data, things unknown; and by using signs for ideas, presents things to the imagination, which otherwise seemed out of its sphere: by this, geometrical demonstrations may be greatly abridged, and a long series of argumentations, wherein the mind cannot without the utmost effort and attention discover the connection of ideas, are hereby converted into sensible signs, and the several operations required therein, effected by the combination of those signs. But, what is more extraordinary, by means of this art, a number of truths are frequently expressed by a single line, which in the common way of explaining and demonstrating things would fill whole volumes. Thus, by mere contemplation of one single line, whole sciences may sometimes be learnt in a few minutes time, which otherwise could scarce be attained many years.

ANALYSIS, is divided, with regard to its object, into that of *finites* and *infinities*.

ANALYSIS of *finite Quantities*, is what we otherwise call specious arithmetic or algebra. See **ALGEBRA**.

ANALYSIS of *Infinities*, called also the *New ANALYSIS*, is particularly used for the method of fluxions, or the differential calculus. See **FLUXIONS**.

ANALYSIS, in logic, signifies the method of tracing things backwards to their source, and of resolving knowledge in its original principles.

This is also called the method of resolution, and stands opposed to the synthetic method, or that of composition.

The art of logical analysis consists chiefly in combining our perceptions, classing them together with address, and contriving proper expressions for conveying our thoughts, and representing the several divisions, classes, and relations.

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ANALYSIS, in rhetoric, the stripping a discourse of all its gaudy drefs of tropes and figures; or, shewing what use the orator has made of these decorations, in order to embellish and set off every part of his oration to the best advantage.

ANALYSIS, in chemistry, the decomposing mixed bodies, or separating their component principles, in order to obtain each of them unmixed with the other.

ANALYSIS of Vegetable Substances. The most complete analysis of a plant is obtained by fire, thus a plant being exposed to a very gentle heat in a distilling vessel, set in balneum Mariæ, yields a water called spiritus rector, which retains its perfect smell, but is so very volatile, that it is difficult to subject it to the experiments necessary for discovering its properties.

If, instead of distilling the plant in balneum Mariæ, it be distilled over a naked fire, with the precaution of putting a quantity of water into the distilling vessel along with it, to prevent its suffering a greater heat than that of boiling water, all the essential oil contained in that plant will rise together with the above water: and as no essential oil can be extracted after the spiritus rector has been drawn off, there is reason to think that the volatility of these oils is owing to that spirit.

ANALYSIS of Animal Substances.— Succulent animal substances, such as new killed flesh, yield by expression a juice or liquid, which is no other than the phlegm, replete with all the principles of the animal body, except the earth, of which it contains but little. The hard or dry part, such as the horns, bones, &c. yield a similar juice by boiling them in water. These juices become thick, like a glue or jelly, when their watery parts are evaporated; and in this state they are true extracts of animal matters. These juices afford no crystals of essential salt, like those obtained from vegetables, and shew no sign either of an acid or an alkali.

ANALYSIS of Mineral Substances.— Minerals differ greatly from vegetables, and animals; they are not near so complex as those organized bodies, and their principles are much more simple; whence it follows, that these principles are much more closely connected, and that they cannot be separated without the help of fire, which, not having on their parts the same action and the same power, as on organized bodies, hath not the same ill effect on them. These bodies are compound masses or com-

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binations of several bodies; that is, metallic substances as they are found in the bowels of the earth, united with several sorts of sand, stones, earths, semi-metals, sulphur, &c. When the metallic matter is combined with other matters, in such a proportion to the rest that it may be separated from them with advantage and profit, these compounds are called ores: when the case is otherwise, they are called pyrites and marcasites; especially if sulphur or arsenic be predominant therein, which often happens. See **ORES** and **ASSAYING**.

ANALYSIS, among grammarians, the explaining the etymology, construction, and other properties of words.

ANALYSIS is also used to imply a brief but methodical illustration of the principles of a science; in which sense it signifies the same with synopsis.

ANALYSIS likewise denotes a table of the principal heads of a continued discourse, disposed in their proper order.

ANALYTIC, or **ANALYTICAL**, that belongs to, or partakes of, the nature of analysis.

Thus we say, an analytical demonstration, analytical process, analytical table or scheme, analytical method of investigation, &c. The analytic method stands opposed to the synthetic. In natural philosophy, as in mathematics, the investigation of difficult things by the analytic method ought to precede the method of composition. This analysis consists in making experiments and observations, and in drawing general conclusions therefrom by induction; and admitting of no objections against the conclusions, but such as are drawn from experiments, and other certain truths: The synthetic method consists in assuming the causes discovered and received as principles, and by them explaining the phenomena proceeding from them, and proving the explanations. See **SYNTHESIS**.

ANALYTICS, *Analytica*, the science and use of analysis.

To the modern analytics principally belongs algebra and fluxions, an historical account of which, see under the articles **ALGEBRA**, and **FLUXIONS**.

ANAMORPHOSIS, in perspective painting, a monstrous projection or representation of an image on a plane or curve surface, which, beheld at a proper distance, shall appear regular and in proportion.

The word is derived from the Greek, and signifies to reform, or bring into a new shape.

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To delineate an anamorphosis upon a plane.—Draw the square *A B C D*, (plate *V. fig. 2.*) of a bigness at pleasure, and subdivide it into a number of little squares. In this square, called the craticular prototype, let the image to be represented deformed, be drawn; then draw the line *a b* (*fig. 3.*) equal to *A B*, and divide it into the same number of equal parts as the side of the prototype *A B*; erect the perpendicular *E V* in the middle of *a b*, so much the longer as the deformity of the image is to be greater. Draw *V S* perpendicular to *E V*, so much the shorter as you would have the image appear more deformed.

From each point of division draw straight lines to *V*, and join the points *a* and *S*, by the right line *a S*. Through the points *d e f g*, draw right lines parallel to *a b*, then will *a b c d* be the space in which the monstrous projection is to be delineated: this space is called the craticular ectype. Lastly, in every areola, or small trapezium, of the space *a b c d*, draw what appears delineated in the correspondent areola of the square *A B C D*; and thus you will obtain a deformed image, which will appear in just proportion to an eye distant from it the length *F V*, and raised above its height *V S*. An image may be deformed mechanically, if you place it, having little holes made here and there in it with a needle, against a candle, and observe where the rays going through these holes, fall on a plane or curve surface; for they will give the corresponding points of the image to be deformed.

ANANAS, the pine-apple, in botany, a genus of plants, whose flower consists of one funnel-shaped leaf divided into three parts, which afterwards become a fleshy fruit, full of juice; the seeds of which are very small, and almost kidney-shaped. Tournefort has enumerated three, and Mr. Miller six, species of this plant.

The pine-apple, says Mr. Miller, so called from its resembling the cones of the European pine tree, is a native of the torrid zone; but has for some years been cultivated here in tolerable perfection. The plant, in its native climate, seldom grows to above three feet in height, and terminates in a flower resembling a lilly, but of so elegant a crimson as to dazzle the eye. The pine-apple makes its first appearance in the center of the flower, about the size of a nut; and as this increases, the lustre of the flower fades, and the leaves expand themselves to make room for it, and serve it at once for a base and ornament. On the top of the apple itself is a crown or tuft of leaves,

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like those of the plant, and of a very lively blue-green colour. This crown grows in proportion with the fruit, till both have attained their utmost magnitude. As soon as this happens the fruit begins to ripen, and its green changes into a bright straw-colour: during this alteration of colour, the fruit exhales such a fragrantcy as to discover it, though concealed from sight. While it continues to grow, it shoots out, on all sides, little thorns and prickles, which, as it approaches toward maturity, dry and soften, so that the fruit is gathered without the least inconvenience.

These plants are propagated by planting the crowns which grow on the fruit, or the suckers which are produced either from the plants, or under the fruit, either of which I have found to be equally good; although, by some persons, the crown is thought preferable to the suckers, as supposing it will produce fruit sooner than the suckers, which is certainly a mistake; for by constant experience I find the suckers (if equally strong) will fruit as soon, and produce as large fruit as the crowns.

The suckers and crowns must be laid to dry in a warm place for four or five days, or more (according to the moisture of the part which adhered to the old plant or fruit) for, if they are immediately planted, they will rot. The certain rule of judging when they are fit to plant, is by observing if the bottom is healed over, and become hard; for if the suckers are drawn off carefully from the old plants, they will have a hard skin over the lower part; so need not lie so long as those which by accident may have been broken. But whenever a crown is taken from the fruit, or the suckers from the old plants, they should be immediately divested of their bottom-leaves, so high as to allow depth for their planting: so that they may be thoroughly dry and healed in every part, lest, when they receive heat and moisture, they should perish, which often happens when this method is not pursued. If these suckers or crowns are taken off late in the autumn, or during the winter, or early in the spring, they should be laid in a dry place in the stove, for a fortnight or three weeks before they are planted; but in the summer-season they will be fit for planting in three or four days.

As to the earth in which these should be planted, if you have a rich good kitchen garden mould, not too heavy, so as to detain the moisture too long, nor over light and sandy, it will be very proper.

for

for them without any mixture: but, where this is wanting, you should procure some fresh earth from a good pasture, which should be mixed with about a third part of rotten neats-dung, or the dung of an old melon or cucumber-bed, which is well consumed. These should be mixed six or eight months at least before they are used; but if it be a year, it will be the better; and should be often turned, that their parts may be the better united, as also the clods well broken. This earth should not be screened very fine; for, if you only clear it of the great stones, it will be better for the plants than when it is made too fine. You should always avoid mixing any sand with the earth, unless it be extremely stiff; and then it will be necessary to have it mixed at least six months or a year before it is used; and it must be frequently turned, that the sand may be incorporated in the earth, so as to divide its parts: but you should not put more than a sixth part of sand; for too much sand is very injurious to these plants.

In the summer season, when the weather is warm, these plants must be frequently watered; but you should not give them large quantities at a time. You must also be very careful that the moisture is not detained in the pots by the holes being stopped; for that will soon destroy the plants. If the season is warm, they should be watered every other day; but, in a cool season twice a week will be often enough: and, during the summer season, you should once a week water them gently all over their leaves, which will wash the filth off them, and thereby greatly promote the growth of the plants. There are some persons who frequently shift these plants from pot to pot: but this is by no means to be practised by those who propose to have large well-flavoured fruit; for, unless the pots be filled with the roots, by the time the plants begin to shew their fruit, they commonly produce small fruit, which have generally large crowns on them; so that the plants will not require to be new-potted oftener than twice in a season: the first time should be about the end of April, when the suckers and crowns of the former year's fruit (which remained all the winter in those pots in which they were first planted) should be shifted into larger pots; i. e. those which were in half-penny or three-farthings pots, should be put into penny, or at most three half-penny pots, according to the size of the plants; for you must be very careful

not to over-pot them, nothing being more prejudicial to these plants. The second time for shifting them is towards the latter end of August, or the beginning of September, when you should shift these plants which are of a proper size for fruiting the following spring into two-penny pots, which are full large enough for any of those plants. At each of these times of shifting the plants, the bark-bed should be stirred up, and some new bark added, to raise the bed up to the height it was at first made; and, when the pots are plunged again into the bark-bed, the plants should be watered gently all over their leaves, to wash off the filth, and to settle the earth to the roots of the plants. If the bark-bed be well stirred, and a quantity of good fresh bark added to the bed, at this latter shifting, it will be of great service to the plants; and they may remain in the tan until the beginning of November, or sometimes later, according to the mildness of the season, and will not require any fire before that time. During the winter season these plants will not require to be watered oftener than every third or fourth day, according as you find the earth in the pots to dry: nor should you give them too much at a time; for it is much better to give them a little water often, than to over-water them, especially at that season. You must observe never to shift those plants which shew their fruit into other pots; for, if they are removed after the fruit appears, it will stop the growth, and thereby cause the fruit to be smaller, and retard its ripening; so that many times it will be October and November before the fruit is ripe: therefore you should be very careful to keep the plants in a vigorous growing state from the first appearance of the fruit, because upon this depends the goodness and size of the fruit; for, if they receive a check after this, the fruit is generally small and ill-tasted.

The method of judging when the fruit is ripe, is by the smell, and from observation; for, as the several sorts differ from each other in the colour of their fruit, that will not be any direction when to cut them; nor should they remain so long as to become flat and dead, as they also do when they are cut long before they are eaten: therefore, the surest way to have this fruit in perfection, is to cut it the same day it is eaten; but it must be early in the morning, before the sun has heated the fruit, observing to cut the stalk as long to the fruit as possible, and

lay it in a cool, but dry place, preserving the stalk and crown to it, until it is eaten.

Miller's Gardener's Dictionary.

ANAPÆST, in ancient poetry, a foot consisting of one long, following two short syllables.

ANAPLEROTICS, in pharmacy, such medicines as promote the growth of the flesh, often called incarnatives.

ANARCHY, a confusion introduced into a state or kingdom, from its being destitute of a head or ruler.

ANATHEMA, among ecclesiastical writers, signifies whatever is separated, set apart, or devoted; but is generally used to express the cutting off a person from the privileges of society and communion with the church.

ANATHEMA, among the heathens, implied an offering or present made to some deity, and which was always hung up in the temple.

ANATOMICAL, something belonging to anatomy.

ANATOMY, the art of dissecting or separating the several parts of animal bodies, to discover their structure and use.

The ancients did not make any remarkable progress in anatomy. Dr. Harvey published his *Discovery of the Circulation of the Blood* in 1628, from which time anatomy made a surprising progress; and a multitude of writers on that science appeared: Clopton Havers, an English physician, wrote admirably on the bones, and made some considerable discoveries with respect to the periosteum and the marrow. He discovered in every joint particular glands, out of which issues a mucilaginous substance, whose nature he examined by several experiments; which, with the marrow supplied by the bones, constantly oil the joints, that both they and the muscles might answer those ends of motion for which nature designed them. This was a very useful discovery; since it has rendered abundance of things, before obscure in that part of anatomy, plain and easy to be understood.

Dr. Willis, an English physician, was an excellent anatomist, particularly in what relates to the brain, nerves, stomach, and intestines. Piccolhominus had, before him, observed that the brain, properly so called, and the cerebellum, consisted of two distinct substances, an outer ath-coloured substance, through which the blood vessels which lie under the pia mater in innumerable foldings and windings are diffused; and an inner, every where united to it, of a nervous nature,

that joins this substance to the medulla oblongata, which is the original of all the pairs of nerves that issue from the brain, and of the spinal marrow, that lies under the brain and cerebellum. Dr. Willis greatly improved these discoveries: he was so exact, that he traced this medullary substance through all its insertions; examined the progress of all the nerves to every part of the body. Hence he not only demonstrably proved the brain to be the fountain of sense and motion: but also, by the courses of the nerves, the manner how every part of the body conspires with others to procure any particular motion, was clearly explained. Pecquet discovered the receptacle of the chyle, and shewed, beyond contradiction, that the lacteal vessels convey the chyle to this receptacle, and proved that it is thence carried by particular vessels through the thorax, into the left subclavian vein, and so directly to the heart. Alphonfus Boerellus gave a mechanical account of the motion of animals, drawn from the structure of the parts. Marcellus Malpighius was deservedly celebrated, for his great skill and singular anatomical researches. His industry was not confined to the more perfect animal, but was extended to insects, and even to vegetables, to the great improvement of natural knowledge and his own honour. He discovered, by means of his own microscopes, the texture of the brain, tongue, lungs, liver, and spleen; the mechanism of the reins was wholly unknown till Malpighius found it out; and by that means effectually confuted several notions, before entertained of some secondary uses of these parts, by proving that every part of the kidneys is immediately and wholly subservient to that single operation of freeing the blood from its superfluous serum and salts. Frederic Ruysch greatly contributed to the improvement of anatomy. This gentleman from his infancy, devoted himself to physic, and began his first researches with the materia medica. The virtue of plants, the structures of animals, the qualities of mineral bodies, chemical operations, and anatomical dissections, were the objects that first struck his fancy, and engaged his attention. Swammerdam having discovered a method of injecting the vessels with a certain matter, communicated his discovery to Ruch, who greatly improved it; and discovered a multitude of things before unknown.

Leuwenhoek obliged the world with a great number of discoveries relative to anatomy, by means of his microscopes.

Several

Several other ingenious anatomists followed him, and carried the science to a great degree of perfection.

Comparative ANATOMY, that which is employed in examining and comparing the bodies of brutes.

ANAXIMANDRIANS, the followers of Anaximander, the first of the philosophical atheists, who admitted of no other substance in nature but body.

ANCHISES, in fabulous history, was a Trojan prince, the son of Capys, was so agreeable in the eyes of Venus, that she offered herself to him in the form of a beautiful young woman, desiring him to present her to his relations, in order to have their marriage speedily solemnized; but he telling her, that nothing should prevent his enjoying her on the spot, she took him at his word, and they went to bed; but towards evening, Anchises fell asleep, and at his waking was sensible that he had lain with a goddess, and apprehending that this would shorten his days, was under great concern; but Venus encouraged him; told him that she should bear him a son, who should be called *Aeneas*; but told him that if he ever boasted of the favour she had granted him, he would be thunder struck by Jupiter. Some time after, when he was drinking with his friends the secret escaped him, on which it is said, that he was struck by thunder, and that this occasioned the loss of his sight.

ANCHOR, a strong heavy instrument of iron, sunk for a ship to moor or retain her in her road, bay, or harbour. It is composed of a shank or shaft, two arms, two flukes, a stock, and a ring. Every ship has or should have three principal anchors, with a cable to each, viz. the sheet, the best-bower, and small-bower; there are, besides, smaller anchors for transporting or removing of a ship from place to place in a harbour or river, where there may not be room or wind for sailing; such as the stream anchor, the kedg and grappling, which last is however generally used for the boats.

For the satisfaction of the reader, we have added a perspective view of an anchor on plate 1, fig. 5. where *a* is the ring to which the cable is fastened, *b* c the beam or shank, *d* e the arm, or that which runs into the ground, *e* f the fluke or palm, and *g* h the stock.

ANCHOR, in architecture, a sort of carving resembling an anchor, generally placed as part of the enrichments of the boustins of Tuscan, Doric, and Ionic

capitals, and also of the boustins of the Doric, Ionic, and Corinthian cornices; anchors and eggs being carved alternately through the whole building.

ANCHOR, in heraldry, is used as an emblem of Hope.

ANCHORAGE, a place where a ship may safely anchor.

ANCORAGE, in law, a duty taken of ships for the use of the port or harbour where they come to an anchor.

ANCHORED, in heraldry, is said of a cross when its four extremities resemble the fluke of an anchor.

ANCHOVY, in natural history, a small fish, common in the Mediterranean, nearly resembling the common sprat.

ANCHUSA, *Alkanet*, in botany, a species of bugloss, differing chiefly from the common buglosses in the red colour of its roots. It grows wild about Montpellier and the eastern countries, and is cultivated in some of our gardens; but the roots produced in this climate are paler coloured than those we receive from abroad.

Alkanet root has little or no smell, and scarcely any taste; nor is it regarded as a medicine. Its chief use is in colouring oils, plasters, lip-salves, &c. which receive a fine deep red from one fortieth their weight of the root.

ANCLE, in anatomy; see *TALUS*.

ANCON, in anatomy, the gibbous eminence or flexure of the cubit.

ANCONES, in architecture, the corners or coins of walls, cross beams, or rafters. Vitruvius calls the consoles by the same name.

ANCONA, in mineralogy, denotes a bloom of iron fashioned into a flat bar, about three feet long, with a square rough knot at each end.

ANCYLE, in antiquity, a kind of shield which, as the Romans pretended, fell from heaven in the reign of Numa Pompilius; and at the same time it was signified by a voice that Rome should be mistress of the world, as long as the preserved this sacred buckler. It was therefore kept with the utmost care in the temple of Mars, under the direction of twelve priests, and least any should attempt to steal this precious piece of armour, eleven others were made so like it, as not to be distinguished from the original. These bucklers were carried annually in procession round the city of Rome.

ANCHYLE, or ANCYLOSIS in surgery, implies a distortion or stiffness of the joints, caused by a settlement of the

A N D

humours, or a distention of the nerves ; and therefore remedies of a mollifying and relaxing nature are required.

ANDANTI, in music, signifies that the notes are to be played distinctly.

* **ANDES**, a large chain of mountains in South America, which run north and south from the most northern part of Peru to the straits of Magellan, between three and four thousand miles, and are the longest and the most remarkable in the world. They form two ridges, the lowermost of which are overspread with woods and groves, and the uppermost are covered with everlasting snow. Those that have been to the top, affirm that the sky is always serene and bright, the air cold and piercing, and yet so thin that they were scarce able to breathe, and the respiration was much quicker than ordinary ; and this is attended with reaching and vomiting. When they looked downwards, the country was hid by the clouds that hovered on the mountain's sides. There are regular plains on the top, of hundreds of miles in length, which being elevated above the regions of the clouds, are illuminated with the purest and most vivid light. There are no winds, no fogs, no grass, plant, herb or tree ; and it is so cold, that a traveller would be in danger of his life, unless he was well clothed. Sometimes men and horses are found dead with cold, with little or no alteration in a great number of years ; these places being inaccessible to heat, rain, and insects. The mountains just mentioned, which have been frequently ascended, are much inferior in height to many others in this enormous chain. The account given of the mountain called Pichincha, by the mathematicians sent by the kings of France and Spain, to make observations in relation to the figure of the earth, differs in several particulars from those just mentioned. They found, that though it is almost directly under the equator, the cold on its top is extremely intense ; the wind was violent, and they were frequently involved in so thick a fog, that an object at six or eight paces distance was scarcely discernable. The air grew clear by the clouds descending nearer to the surface of the earth, when they, on all sides, surrounded the mountain to a vast distance, representing the sea with their rock standing like an island in the centre. When this happened, they heard the dreadful noise of the tempests, that discharged themselves on the city of Quito, and the neighbouring country. Looking down, they saw the lightning issue from the

A N D

clouds, and heard the thunder roll far beneath them. While the lower parts were involved in thunder and rain, they enjoyed a delightful serenity ; the wind was abated, the sky clear, and the enlivening rays of the sun moderated the severity of the cold. But, when the clouds rose, their thickness rendered respiration difficult ; snow and hail fell continually, and the wind returned with all its violence ; so that it was impossible to overcome entirely the fear of being, together with their hut, blown down the precipice, or of being buried in it, by the daily accumulations of ice and snow. There is a road through the mountains, one thousand miles in length.

ANDREW, or *Knights of St. Andrew*, an order of knighthood instituted in Scotland, generally called the order of the thistle. See plate V. fig. 4.

* **ANDREW** (St.) one of the twelve apostles, and brother of St. Peter. He was at first one of the disciples of John the Baptist ; who brought him to the knowledge of Christ, by saying, " See the Lamb of God, who taketh away the sins of the world ;" and afterwards Andrew told Peter that he had seen the Messiah, and brought him to Christ. St. Andrew is thought to have preached the Gospel in Scythia, where he suffered martyrdom. He is commonly represented fastened to two pieces of wood across each other in the form of an X ; but his being thus crucified has no foundation in antiquity.

ANDREW's (St.) This was once the metropolis of Scotland, where the first university was founded. The cathedral church, which was reckoned a very fine one, is now in ruins. It is seated in a plain, having a prospect of the German Ocean. The greatest ornament is the university, consisting of three colleges, the Old College, St. Leonard's College, and the New College. Each has a principal, and out of these a rector is chosen yearly. The students wear red gowns. The houses of this town are much decayed, though they are built of free-stone, the inhabitants having neither manufactures nor trade ; though they are said to exceed four thousand. The church of the Holy Trinity is an ancient stately edifice, built in the form of a cross ; and at its west end is a handsome spire. The other two churches are now only chapels to the colleges. The harbour has suffered very much by the encroachments of the sea, and is now very dangerous ; and though there was a brief granted for the reparation

tion of it in 1728, yet it proved insufficient for the purpose. It is thirty miles north-east of Edinburgh, and forty-five east-north-east of Stirling. Long. 2. 25. W. Lat. 56. 18. N.

St. ANDREW'S-DAY, a festival observed by the church on the 30th of November, in honour of the apostle St. Andrew.

ANDROGEUS, in fabulous history, the son of Minos, King of Crete, was murdered by the Athenian youth and those of Megara, who envied his being always victor at the Attic games. But Minos having taken Athens and Megara, obliged the inhabitants to send him an annual tribute of seven young men and as many virgins, to be devoured by the Minotaur; but Theseus delivered them from that tribute.

ANDROMACHE, wife of Hector, mother of Astyanax, and daughter of Eëtion, King of Thebes in Cilicia. After the death of Hector and the destruction of Troy, she married Pyrrhus, and then Helenus the son of Priam, with whom she reigned over part of Epirus.

ANDROMEDA, in astronomy, the name of a constellation of the northern hemisphere, representing a woman chained. The number of stars in this constellation, in Ptolemy's catalogue, are 23; in Tycho's 22; in Bayer's 27; and in Mr. Flamsteed's 84.

ANDROMEDA, in fabulous history, was the daughter of Cepheus and Cassiopea, she was fastened to a rock by the nymphs, in order to be devoured by a sea-monster; but being seen by Perseus, he loosened her, and brought her to her father, who gave her to him in marriage.

ANDROSACE, in botany, a distinct genus of plants, the flower of which consists of one petal, broad at the top, and divided into five segments. Its fruit is a globular and single capsule, containing a number of small oval or roundish seeds fixed to a placenta.

ANECDOTE, among historians, implies some fact not formerly published to the world, or very little known.

ANEMOMETER, in mechanics, a machine for measuring the force or velocity of the wind.

ANEMONE, the wind-flower, in botany, a genus of plants, of which there are two species, the cultivated and the wild; and both these are divided into several others, especially the former, many of which are kept in gardens for the beauty of their flowers.

ANEMOSCOPE, a machine that shews either the course or velocity of the wind.

The machine which shews the course of the wind, or from what point of the compass it blows, consists of an index moving about on an upright circular plate, like the dial of a clock, on which the thirty-two points of the compass are drawn instead of the hours. The index which points to the divisions on the dial is turned by a horizontal axis, having a trundle-head at its internal extremity. This trundle-head is moved by a cog-wheel in a perpendicular axis, on the top of which a vane is fixed that moves with the course of the wind, and puts the whole machine in motion. The whole contrivance is extremely simple, and nothing required in the construction, but that the number of cogs in the wheel, and rounds in the trundle-head be equal; because it is necessary that, when the vane moves entirely round, the index of the dial also makes a complete revolution. An anemoscope of this kind is placed in one of the turrets of the queen's palace, in St. James's Park.

The anemoscope, calculated for indicating the force or velocity of the wind, is the same with what most writers call an anemometer. There is another, contrived by the late Mr. Pickering, and published in the *Philosophical Transactions*, No. 473.

ANETHUM, *Dill*, in botany, an annual umbelliferous plant, with very finely divided leaves, and yellow flowers; it is a native of the warmer climates, cultivated with us in gardens, flowers in July, and in September sheds its seeds, by which the plant is plentifully propagated.

The seeds of dill have a moderately warm pungent taste, and an aromatic smell, but not of the most agreeable kind; they are given as carminatives, to the quantity of a dram at a time, in flatulent cholics, and indigestion from a laxity of the organs and viscidities of the humours. The leaves are weaker and less grateful than the seeds; the roots have nothing of their flavour.

ANEURISM, in surgery, a tumour arising from the dilatation, or the rupture of the coats of an artery. Aneurisms usually proceed from an artery being accidentally cut or pricked in bleeding, or from a preternatural distention, or a corrosion of its coats, &c.

ANGEL, a name applied to those spiritual intelligent beings who are supposed to execute the will of the Divine Being in the government of the world. All religions

religions have admitted of the existence of angels. The Greeks and Latins acknowledge them under the names of genii and demons; and in the Alcoran we find frequent mention of them; the professors of the Mahometan religion assigning them various orders and degrees, as well as different employments, both in heaven and earth. Nothing is more frequent in Scripture than the missions and apparitions of good and bad angels: God sends them to declare his will, to correct, teach, reprove, and comfort: God gave the law to Moses, and appeared to the old patriarchs by the mediation of angels, who represented him and spoke in his name. The existence of angels is supposed in all religions. Though the Jews in general believe the existence of angels, there was a sect among them (the Sadducees) who denied the existence of all spirits whatever, God only excepted: and yet the Samaritans and Garaites, whom the Jews represent as Sadducees, acknowledged such beings. It has been questioned, whether the ancient Hebrews paid divine homage to angels or not. The form of benediction which Jacob used in blessing the sons of Joseph, (the angel which redeemed me from all evil bless the lads) may seem to imply that they did. The rabbins, in glossing upon the text, observe, that the prayers of their ancestors were not directly addressed to angels, but it was really God they invoked, when they prayed to them. Though it is an universal opinion that angels are of a spiritual, incorporeal nature, yet many of the old fathers, misled by a passage in Genesis where it is said, "That the sons of God (or the angels) saw the daughters of men, that they were fair, and they took them wives of all which they chose," imagined them to be corporeal, and capable of sensible pleasures. Other fathers indeed, and those in great number, have asserted angels to be purely spiritual. There have been a great many disputes and varieties of fancy concerning the number, order, nature, and power of angels; most of which are not to be resolved by scripture or tradition. The author of the books *De Hierarchia celesti*, who wrote about the beginning of the sixth century, is the first who ventures to range the angels into three hierarchies and nine orders. The Jews likewise distinguish them into several orders, and set, as it were, a general at the head of them; they call him Metraton, the same with the Christian St. Michael. As to guardian angels, they are very clearly described in the Old Testament. Jacob speaks of

the angel who had been his guide in all his journeys, and had delivered him out of all his dangers. The Psalmist, in several places, mentions angels as the protectors of the righteous. In the New Testament we hear of St. Peter's angel who set him at liberty; and Jesus Christ enjoins us not to despise little ones, because their angels continually behold the face of God. The Jews, and the very heathens, believed that particular angels were commissioned to attend us, and had the care of our conduct. Hesiod, the most antient, or at least one of the most antient Greek authors, says, that there are good angels upon earth, sent by Jupiter for the protection of mankind, and to observe the good or evil which they practise. Plato says, that every one of us has two demons, or two genius's, one inclining us to evil, the other directing us to good; though Apuleius says, that Plato assigned but one demon to every man. Angel, in commerce, a gold coin formerly current in England. It had its name from the figure of an angel represented upon it, weighed four pennyweights, and was twenty-three and a half carats fine. It had different values in different reigns; but is at present only an imaginary sum, or money of account, implying ten shillings.

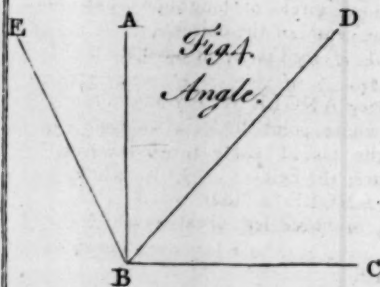
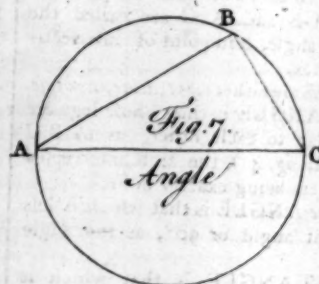
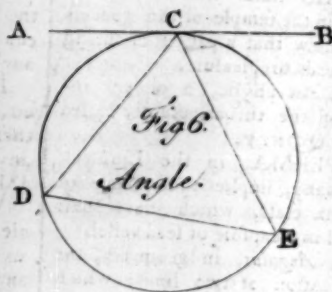
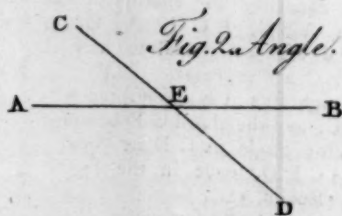
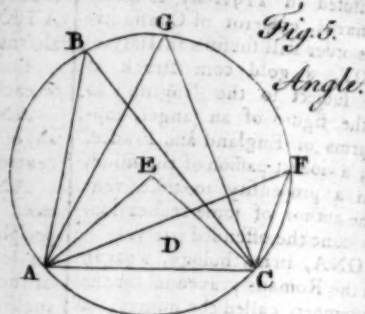
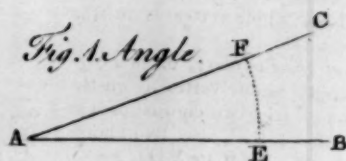
ANGELICA, in botany, a large umbelliferous plant, of which there are two species the wild and the garden, distinguished by the epithets *sylvestris* and *jativa*. The former grows wild, in moist grounds, in several parts of England; is perennial, and flowers in July: the latter is cultivated in gardens. They are similar in quality; but the latter is supposed to be the stronger. The garden angelica is naturally a biennial plant; but if the stalks are cut down before they run to flower, the roots will send forth new heads, and, may, by this means, be continued for many years. The roots are in their greatest perfection in the second spring: they should be thoroughly dried, kept in a dry place and frequently aired, otherwise they will grow mouldy, and be eaten by worms. The roots of angelica are one of the principal aromatics of European growth, though not much regarded in the present practice. They have a fragrant agreeable smell, and a bitterish pungent, mixed with a pleasant sweetish taste. The other parts of the plant have the same taste and flavour with the roots; but their active principles are far more perishable. The stalks, candied with sugar, make a very agreeable sweetmeat.

ANGELIC



PLATE VIII.

Facing Angle.



A N G

ANGELICS the name of an order of knights instituted in 1191, by Angelus Flavius Comnæus, emperor of Constantinople. This order still subsists in Italy.

ANGELOT, a gold coin struck at Paris, while subject to the English; so called from the figure of an angel, supporting the arms of England and France.

ANGER, a violent passion of the mind, consisting in a propensity to take vengeance on the author of some real or supposed injury done the offended party.

ANGERONA, in mythology, a pagan deity whom the Romans prayed to for the cure of a distemper, called the quincy, in Latin, *angina*. Pliny calls her the goddess of silence and calmness of mind, who banishes all uneasiness and melancholy. She is represented with her mouth covered, to denote patience and refraining from complaints. Her statue was set up, and sacrificed to, in the temple of the goddess Voluptas, to shew that a patient enduring of affliction leads to pleasure.

ANGINA, in physic, a violent inflammation of the throat, usually called quincy. See **QUINCY**.

ANGIOSPERMA, in the Linnæan system of botany, implies those plants of the didynamia class, which have their seeds inclosed in a capsule or seed vessel.

ANGLE, *Angulus*, in geometry, the mutual inclination of two lines, which meet and form an angle in their point of intersection. Such is the angle BAC , (plate VIII, fig. 1.) formed by the right lines AB , AC , meeting in the point A . The lines AB and AC are called the legs of the angle, and point of intersection, the vertex.

ANGLES are either *right, acute, or obtuse*.

A *right* **ANGLE** is that whose legs are perpendicular to each other, as ABC (plate VIII, fig. 4.) the arch intercepted between them being exactly 90° .

An *Acute* **ANGLE** is that which is less than a right angle or 90° , as the angle DEC .

An *Obtuse* **ANGLE** is that which is greater than a right angle, as EBC .

Adjacent **ANGLES** are such as have the same vertex, and one of the legs continued beyond the angular point.

Vertical **ANGLES** are formed by two right lines intersecting each other. Thus the right lines AB , CD , (fig. 2.) by their intersection in E , form the vertical angles AEC , DEB , and AED , CEB .

Alternate **ANGLES** are those acute or obtuse angles formed by a right line cutting two parallel right lines. Thus if

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AB and CD (fig. 3.) are parallel, and GH cuts them in I and K , the angles AIK , DKI , and BIK , IKC , are alternate angles.

The alternate angles are always equal to each other. (18 *Eucl.* 1.)

ANGLE *at the Centre of a Circle*, is an angle in a circle, whose vertex is in the centre of that circle.

ANGLE *at the Periphery, or in a Segment*, is an angle whose vertex is in the periphery, and its legs two chords of the circle. Thus AB , BC , are two chords of the circle $ABCD$, (Plate VIII, fig. 5.) making an angle B at the periphery, which is called an angle in a segment.

This angle is always equal to half the angle at the center, standing upon the same arch (6 *Euclid.* 3.) Also all angles in a segment, standing upon the same arch, are equal to one another. Thus the angles ABC , AGC , AFC , are equal, and are each equal to half the angle AEC at the center.

If the right line AB (fig. 6.) touch the circle in C , and the chord CD be drawn, then will the angle ACD be equal to any angle CED , made in the segment DEC . (*Euclid.* 32. 3.)

When the arch is a semicircle, the angle will be a right angle. Thus if the arch ABC (fig. 7.) be a semicircle, the angle ABC will be a right angle. When it is greater than a semicircle, the angle will be acute; but when less, it will be obtuse. (31 *Euclid.* 3.)

Spherical **ANGLE** is an angle formed by two circles of the sphere.

Mixed Line **ANGLE** is that comprehended between a right line and a curve line, as the angle ABC . (fig. 8.)

ANGLE *of the Sun's Position*, an angle formed by the meridian, and an azimuth, or other great circle, drawn through the center of the sun.

ANGLE *of Longitude*, an angle formed at the pole of the ecliptic between the meridian, and a circle of longitude drawn through the center of the object.

ANGLE *of the Course*, in navigation; see **COURSE**.

Re-entering **ANGLE** is any angle in a fortress, whose point turns inwards, or towards the place; that is, whose legs open towards the field.

Salient **ANGLE** is that which points outwards, or whose legs open towards the place.

ANGLE *of the Complement of the Line of Defence* is the angle formed by the intersection of the two complements with each other.

ANGLE

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ANGLE of the *Mus*, is formed before the curtain where it is intersected.

ANGLES of a *Battalion*, in military affairs, the last men where the ranks and files terminate.

* **ANGLESEY**, an island in the Irish Sea, and a county in Wales, which is separated from Caernarvonshire by a strait or narrow arm of the sea, called *Meneu*. It was called by the Britons *Mon*, by the Saxons *Moneg*, and by the English *Anglesey*, or the English Island. It is about twenty-four miles in length, and in the broadest parts seventeen in breadth. It contains six hundreds, seventy-four parishes, and sends two members to parliament, one whereof is for *Beaumaris*. The principal rivers are the *Brant* and the *Keveny*. The soil is stony, rocky, and mountainous; but it produces corn and cattle, and there is plenty of fowl and fish. It was formerly covered with trees, which served for a retreat to the Druids.

ANGLING, the art of fishing with a rod, line, hook, and bait.

The following rules are very necessary to be observed in angling. 1. To place yourself in such a manner that your shadow do not at any time fall upon the water, especially if it be shallow. 2. To angle in a pond near the ford where cattle go to drink, and in rivers, in such places as the fish you angle for usually frequent; as, for breams in the deepest water; for eels under banks; for chub in deep shaded holes; for perch and roach in scowrs; for trouts in quick streams. The best times for angling are from April to October; for in cold stormy weather, or bleak easterly winds, the fish will not bite. The time of the day, in warm months, is in the morning, about nine o'clock, and in the afternoon between three and four. In order to attract fish to the place intended for angling, it will be proper once in four or five days to throw in some corn boiled soft, garbage, worms chopped to pieces, or grains steeped in blood and dried; and, if you fish in a stream, it will be best to throw in the grains above the hook. The best method of angling with a fly is down the stream; and, in order to make the fish bite freely, be sure to use such baits as you know they are naturally inclined to, and in such a manner as they are accustomed to receive them. See the Articles *SALMON*, *TROUT*, *CARP*, *TENCH*, *PERCH*, *PIKE*, *DACE*, *GUDGEONS*, *ROACH*, *FLOUNDERS*, &c.

ANGLO-SAXON, a name given to

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the language spoken by the English Saxons, in order to distinguish it from the true Saxon, and also from the modern English.

* **ANGOLA**, a kingdom in Africa, to the south of the line, lying along the western sea-coast, between five and ten degrees of latitude. It was first visited by the Portuguese, who have settled several colonies, and have converted great numbers of the negroes to Christianity, but they adhere to most of their old customs, go almost naked, and take as many wives as they please. The country is divided into several territories, or capitaniaries. The air is exceeding hot and unhealthy; but the soil is very fruitful in pasture, vegetables, grain, and fruits; poultry and cattle are exceeding cheap; and there are zebras, elephants, and other creatures common to those parts of Africa. The Negroes are large, strong, and coal-black, but lazy. They have different languages; and every village has what we call a king; but they are subject to one potentate, who is obliged to acknowledge the Portuguese for his masters.

ANGUINEAL Hyperbola, a kind of serpentinizing hyperbola, cutting its asymptote with contrary flexions.

Sir Isaac Newton, in his *Treatise of Curves*, has given this name to the 33, 34, 35, and 36 species of the second order, and which he has expressed by this equation, $x y y . e y = - a x . b x . e x . d$.

ANGULAR, relating to, or having angles.

ANGULAR Motion, in astronomy, is the increasing or decreasing angle, formed by two lines drawn from a central body to the apparent places of the two planets in motion.

ANHIMA, in natural history, a bird, common in Brazil, resembling a crane in some particulars; but differing from that and all other birds by a slender horn of a bony substance, inserted a little above the origin of its beak: It is larger than a swan, and mottled with black, grey, and white; in some parts are small spots of yellow.

ANHINGA, in natural history, an extremely beautiful water fowl, found in the Brazils, about the size of our common duck. Its beak is about an inch and a half in length, and has a row of hooked prickles, both above and below; the upper part of the back is brown, spotted with yellow; and the breast, belly, and thighs, are of a silvery white.

ANIMADVERSION, a term sometimes used to signify correction; sometimes

times remarks, and sometimes serious consideration.

ANIMAL, in natural history, an organized body, endowed with life and spontaneous motion. Boerhaave defines an animal, respecting only the body, not the soul, to be an organical body, consisting of vessels and juices; and taking in the matter of its nutriment by a part called a mouth; whence it is conveyed into the intestines, in which it has roots implanted, whereby it draws in its nourishment after the manner of plants. According to this definition, an animal is distinguished from a fossil, in that it has an organical body; and from a vegetable by this, that it has its roots within itself, and a plant without itself. In effect, the intestines of an animal are, in reality, no more than its earth, or the body it adheres to; into which it sends forth its roots, that is, the lacteal vessels, which thence draw the matter of its life and increase. The general characteristic then of an animal is, to be free and at large with respect to the subject it derives its nourishment from; for every thing is taken in at the mouth, and the mouth does not adhere to any thing: whereas all plants are connected in some manner or other to the body, which furnishes them with food.

It therefore follows, that a foetus, while it remains in the mother's womb, is a real plant, as being connected by the funiculus umbilicalis to the placenta, and by the placenta to the uterus, from whence it receives its nourishment. Some have defined animals from their local motion, as being capable of shifting from place to place, and plants from sticking fast to the same subject; but on this principle, oysters, mussels, cockles, &c. are excluded from the class of animals, inasmuch as they adhere or grow to rocks &c. yet it is certain that those creatures are real animals, as they have mouths and stomachs to take in their food; and lacteals, mesentery, and veins to receive it. All animals, according to the most probable and received opinion, are produced originally from eggs, in which they are contained, till the seed of the male penetrate their covering and stretch them, so as they become ready for hatching. When the animal breaks loose from its shell in its perfect form, we say the dam of it is viviparous; when the young is excluded with hard covering round it, which we call the shell, we say the dam is oviparous. The shell of the egg in the viviparous kind is hard and convex, the

better to resist the pressure and the injuries of the air, to which it must lie exposed for some time.

Animals that have feet, fins, or wings, and have the free power of transporting themselves from one place to another, are divided into two sexes under each species, that they may confer their joint offices in rearing their young. On the other hand, those animals which are confined all their life to one spot are hermaphroditical, or have both sexes conjoined in one body, and procreate their species without the concurrence of a mate. Of this sort are limpets, sea-eels, and several other kinds of shell-fish. Philosophers comprehend man under the species of animals, and define him a reasonable animal: though among naturalists, &c. animals are usually restrained to irrational.

Animals may be considered either as aerial, terrestrial, aquatic, or amphibious. We call those aerial which have wings, with which they can support themselves in the air. Terrestrial are those whose only place of rest is upon earth. Aquatic are those whose constant abode is upon the water. Those are called amphibious which live freely in the air upon the earth, and yet are observed to live long on the water, as if they were natural inhabitants of that element.

Aerial animals may be subdivided into birds and flies. Fishes, which are the chief part of aquatic animals, may be divided into shell-fishes, scaly fishes, and those that have neither apparent scales nor shells. And terrestrial animals may be divided into quadrupedes, or beasts; reptiles, which have many feet, and serpents which have no feet at all. Insects, which in their several changes belong to several of the before-mentioned divisions, may be considered together as one great tribe of animals. They are called insects, from a separation in the middle of their bodies, whereby they are as it were cut into two parts, which are joined together by a small ligature, as we see in wasps, common flies, and the like.

Most animals have five senses, viz. seeing, hearing, smelling, tasting, and feeling. Some reptiles of the earth, and some of the aquatics, want one or more of the senses which are in perfect animals, as worms, oysters, cockles, &c. Animals consist of solids, or firm parts, as flesh, bones, membranes, &c. and fluids, as blood, &c.

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Animals make the subject of that branch of natural history called zoology.

The structure of animals, with their disorders, remedies, &c. make the subject of anatomy, medicine, &c.

As to the structure of animals, it is observed that the make of every kind of animal is different from every other kind: and yet there is not the least turn in the muscles or twist in the fibres of any one, which does not render them more proper for that particular animal's way of life, than any other cast or texture of them would have been.

ANIMAL, used adjectively, signifies something belonging to, or partaking of, the nature of animals.

ANIMALCULE, a minute animal, scarce, or not at all, visible to the naked eye.

Animalcules, though so very minute as to be only seen by the assistance of the microscope, are vastly more numerous than any other part of the animal creation. They have been discovered in most liquors, in several of the chalybeat as well as in common water: in oats, barley, wheat, peas, &c. and in the pustules of the itch.

ANIMATED, something inspired with life, or that exhibits marks of being inspired by some spirit or soul.

ANIMATED Power, in mechanics, implies a man, or other animal, in contradistinction to springs, water, wind, &c.

ANIMATED Needle, a needle touched with a loadstone, or magnet. See **MAGNET**.

ANIME, or *Gum ANIME*, in natural history, a kind of gum, or rather resin, of a friable substance, inflammable, and soluble in oil. There are two kinds of this gum-resin, distinguished by the names of oriental and occidental.

The oriental or Ethiopian anime, called by the Portuguese *animum* and *animium*, and in the shops *gum anime*, is a dry and solid resin, brought to us in large cakes or masses, of an irregular figure, and of a very uncertain colour; some of them are greenish, some reddish, some brown, and some of the colour of myrrh; they all agree in this, however, that they are moderately pellucid, of a tolerable compact texture, light and easily powdered, of a fragrant smell, very inflammable, and of a resinous and somewhat bitter taste. This, which is the genuine and true anime, is now very rare in the shops. It is brought, as Garcias informs us, only from Ethiopia; but the occidental kind, or resin of the *courbaril*, is what is uni-

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versally received in its place. We are not yet informed what the tree is that produces the Ethiopian anime. Herman is of opinion, that it is the same that yields the occidental kind, only growing in a different climate; but this is no more than a conjecture.

The occidental anime is a whitish, dry, and solid resin, somewhat resembling frankincense in colour. It is often of a fine yellowish white, between that of frankincense and mastich, and in the purest pieces is very clean and transparent; in general, however, it is much inferior to the oriental in these respects. It is moderately heavy, friable, and somewhat oleaginous to the touch. It is extremely fragrant, especially when burnt, and is of a resinous, acrid, and somewhat bitterish taste. It is brought to us from many parts of America, particularly from New Spain and the Brasils. The natives call it *joticacica* and *jetaicaica*. Our people, from their name of the tree, vulgarly call it resin of *courbaril*. The tree which produces it is one of the arbores filiquosæ of Mr. Ray, and grows to a great height. It is common in most parts of America; and the fruit ripens in May and June, when it falls from the trees, and is picked up by the natives, who are fond of the farinaceous substance that is among the fibres within. The trunk of the tree exudates the resin here described in very considerable quantities, without being wounded for it; the finest lumps of it are white, or of a pale yellow, and much resemble amber.

ANINGA, a root growing in the Antilles islands, nearly resembling the china root. It is used in the sugar works for refining the sugar.

ANISE, *Anisum*, in botany, a small annual umbelliferous herb, producing roundish striated seeds, flattened on one side, and pointed at one end; of a pale colour inclining to green. The upper leaves are divided into five segments; but the lower are entire, roundish, and serrated about the edges. This plant, which is said to be a native of Egypt and Syria, is cultivated in the southern parts of Europe; and is raised in some of our gardens, but seldom brings its seed to perfection. The seed brought from Spain are reckoned the best. Aniseeds have an aromatic smell, and a pleasant warm taste, accompanied with a small degree of sweetness. They are in common use as a warm carminative, and supposed to be the most effectual of all the warm seeds. They give out all their virtue to rectified spirits, which become of a bright lemon

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lemon colour, and taste very agreeably. In distillation they give over the whole of their flavour. An essential oil arises with the water, in a considerable quantity, above an ounce having been extracted from three pounds of the seed. It is recommended chiefly in disorders of the breast; but is said to be less effectual in flatulencies, than the seeds in substance.

ANISE *Stellatum*, stellated anise, is the fruit or seed vessel of a small tree growing in Tartary, China, and the Phillippine islands. The husks have a fragrant smell, and a sweetish warm aromatic taste, like the common anniseeds, but stronger and more agreeable. They have also the same virtues.

ANKER, a liquid measure at Amsterdam, containing about thirty-two gallons English.

ANNALS, a species of history, wherein events are related in the chronological order they happened.

It differs from a perfect history, in being only a meer relation of what passes every year, as a journal is of what passes every day; whereas history relates not only the transactions themselves, but also the causes, motives, and springs of such actions. Cicero informs us that the pontifex maximus, in order to preserve the memory of events, wrote what passed each year on tablets, which were exposed to public inspection in his own house. These tablets were called *annales maximi*; hence the writers who imitated this method of writing were stiled annalists.

ANNATES, among ecclesiastical writers, implies the first year's revenue of a spiritual living. These annates were formerly given to the pope; but at the Reformation they were vested in the king. Queen Anne, however, restored them to the church, by appropriating them to the augmentation of small livings.

ANNE, or *St. Anne's Day*, a festival observed in the Greek and Latin churches, in honour of Anne or Anna, mother of the Virgin Mary.

* **ANNE**, queen of Great Britain, the youngest daughter of king James II. and Anne Hyde, his first wife, was born on the 6th of February, 1665, and married to prince George of Denmark on the 17th of August, 1683, by whom she had several children, who died young. Her person was of the middle size, majestic, and well proportioned; her face round and handsome; her complexion ruddy, her features regular, and her hair of a dark brown. She was possessed of most of the virtues that in private life adorn her sex, and succeeded her brother-in-law, William III. on the

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4th of May, 1702, and during her reign the honour of the British arms was carried to an amazing height, particularly by the duke of Marlborough, who, in her reign, humbled the pride of France, by a number of the most glorious victories. The nation being at the same time at war with Spain, the duke of Ormond and Sir George Rook took Vigo, when eleven French men of war were burnt and ten taken; six galleons were sunk, and eleven taken. On the 24th of July, 1704, Sir George Rook took Gibraltar, after a siege of two days. The next year the earl of Peterborough took the city of Barcelona, and several other places in Spain; and in 1706 the earl of Galway, at the head of twenty thousand men, took Alcantara, a city of Portugal. In 1708 major-general Stanhope landed with three thousand men on the island of Minorca, and attacked Fort St. Phillip, where the garrison, which consisted of a thousand Spaniards, and six hundred French, surrendered in three days; the men were made prisoners of war, and the whole island conquered in three weeks.

These wars were concluded by the treaty of Utrecht in 1713, by which Spain and Spanish America were confirmed to king Philip; but the Netherlands and the Spanish dominions in Italy were separated from that monarchy. Their Italian dominions consisted of the kingdoms of Naples, Sicily, Sardinia, and the duchy of Milan, of which Naples, Sardinia, and Milan were bestowed upon the emperor; and Sicily, with the title of king, given to the duke of Savoy. The Dutch had a barrier given them against France in the Netherlands; while Harley and Bolingbroke, the new ministry, in complaisance to France, only insisted on having Dunkirk demolished, and the possession of Gibraltar, Minorca, and Acadia, or Nova-Scotia, secured to the crown of England, though much better terms had been before offered by the French. Queen Anne procured a law for the building of fifty new churches within the bills of mortality, with an augmentation of the livings of the poor clergy; and in 1706 the union of the two kingdoms of England and Scotland took place. The queen died at Kensington on the first of August, 1714, in the 50th year of her age, and the thirteenth of her reign. She was succeeded by George I.

* **ANNE** Boleyn, Queen of Henry VIII, was executed on Tower-hill, May 19, 1536. Henry began to be cloyed with the possession of Anne Boleyn, who had lately been delivered of a dead male child; to the unspeakable disappointment of

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of her husband, who was superstitious enough to believe this accident was a judgment from heaven. He was about this time captivated with the beauty of Jane Seymour, one of the queen's ladies; and his passions were so strong and impetuous, that he sacrificed every thing to their gratification. These concurring motives for his alienation from the queen, were strengthened by his wife's deportment, which was too frank and unguarded, to screen her from the imputation of levity and indiscretion. Her enemies, in particular the duke of Norfolk, and all those who had adhered to the old religion, took advantage of this disposition, to inflame the king's jealousy; the principal fomenters of which was the lady Rochford, sister-in-law to queen Anne, a woman of an infamous character, who hated her mistress with the most envenomed rancour. She hinted to the king, that his wife carried on a criminal correspondence with her own brother the lord Rochford: and Henry's mind being prepared for this poison, by his disgust for Anne, and his new passion for Jane Seymour it operated with great violence. The insinuations of the lady Rochford were confirmed by the duke of Norfolk, who enjoyed a great share of the king's confidence, and was devoted to the popish religion, which could not flourish while queen Anne lived to countenance the reformation. The partisans of the pope therefore conspired her ruin. She was not only accused of incest with her brother the lord Rochford, but likewise of living in carnal commerce with Henry Norris, groom of the stole, Weston, and Brereton, of the king's privy chamber, and Mark Smeton a musician. There was no other evidence than an hearsay declaration of one lady Wingfield, who confessed some particulars on her death-bed: but, this was sufficient to ruffle such a mind as that of Henry, who, is said to have observed Anne, at a tournament in Greenwich, drop her handkerchief to one of her minions, that he might wipe his face, after having over-heated himself in the exercise. Be that as it may, the king returned abruptly to Whitehall; Anne was confined to her chamber; and the suspected delinquents being apprehended at the same time, were committed to the tower. Anne smiled at first, thinking the king was in jest; but when she found it was a very serious affair, she received the sacrament in her closet, and prepared for death. This reverse of fortune affected her in such a manner, that she was seized with hysterics, during which she laughed and wept

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by turns; and uttered many inconsistencies, according to the nature of that disease. Next day she was conveyed to the tower, where she fell upon her knees, and appealed to God for the knowledge of her innocence. She in vain, begged to be admitted into the presence of the king. The lady Boleyn, her uncle's wife, who had always hated her, was ordered to be in the same chamber with her; and she made a report of all the incoherent ravings of the afflicted prisoner. She was visited by the duke of Norfolk, and some of the king's council, who endeavoured to draw her into a confession, by saying she was accused by Norris and Smeton: but, she still persisted in denying the charge; and told the lieutenant of the tower, she was not more guilty with any man upon earth, than with himself. She confessed indeed, that she had, in the gaiety of her heart, made use of some indiscreet expressions to Smeton and Weston; and the familiarity of her behaviour had encouraged them to hint a passion for her, which, in all probability, afforded her matter of laughter and amusement; and perhaps the knowledge of those frivolous circumstances increased the king's jealousy and indignation. Every person at court abandoned the unhappy queen in her distresses, except Cranmer, who, though forbid to come into the king's presence, wrote a letter to him in behalf of Anne Boleyn. But his intercession had no effect. On the twelfth day of May, Norris, Weston, Brereton, and Smeton, were tried in Westminster-Hall; when Smeton confessed he had known the queen carnally three times; but he was supposed to have been inveigled into this confession with a promise of pardon. The other three pleaded not guilty; but, all four were convicted and condemned to die the death of traitors. On the fifteenth day of the month, the queen, and her brother lord Rochford, were brought to their trial, before the duke of Norfolk, as lord high steward for the occasion, the duke of Suffolk, the marquis of Exeter, the earl of Arundel, and five and twenty other peers. The queen appearing at the bar, was charged with criminal conversation with her brother, and the other four; as also with having conspired the king's death. She pleaded not guilty, and answered distinctly all the evidence that was provided against her. As she was not confronted by Smeton, in all probability he had borne false witness; for, all the others denied the charge. Nevertheless she was convicted and condemned to be burned or beheaded at the king's pleasure. Her brother likewise was found guilty, and

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and sentenced to be beheaded and quartered. The king, not satisfied with this vengeance was desirous of seeing her daughter Elizabeth declared illegitimate. He remembered a report of a previous contract, between lord Piercy, afterwards earl of Northumberland, and Anne Boleyn. The earl being questioned on this subject, declared, that no such contract had ever subsisted. He swore to this declaration on the sacrament, which he wished might be his damnation if he did not speak the truth. Nevertheless, Anne was tampered with in such a manner, either by promise of life, or threats of executing the sentence in all its rigour, that she confessed such a precontract, at Lambeth, before the afflicted archbishop of Canterbury, and some other persons of distinction; and her marriage with the king was declared null and insufficient. This sentence, however, palpably contradicted the other which had been pronounced against her; for, if her marriage with Henry was null from the beginning, she could not be justly attainted for adultery. In two days after this declaration, she was ordered to be executed in the green on Tower-Hill; and behaved with great piety, resignation, and good humour. She is said to have written a letter to the king, when she first understood the cause of her confinement. Such an address was afterwards found among the papers of Cromwell, drawn up with such pathetic eloquence and dignity of expression, as to do great honour to the author; but it is generally suspected to have been written by another hand. On the day that preceded the execution, she desired the wife of the lieutenant of the tower to sit down in the chair of state; then kneeling before her, and shedding a flood of tears, she conjured her to go, in her name, and ask pardon of the princess Mary, for the harshness with which she had been treated. On the morning of her execution she sent for the lieutenant, that he might be present at her receiving the sacrament, and declaring her own innocence. She said, she was sorry to hear her execution was delayed till the afternoon, because before that time she had expected to be out of her pain. Then she inquired about the dexterity of the executioner; fixed her hands about her neck, observing that she had a very little neck, and laughing heartily. When she was brought to the scaffold, in presence of the dukes of Suffolk and Richmond, the lord chancellor, the secretary Cromwell, with the lord-mayor, aldermen, and sheriffs of London, she said she was come to die, as she had

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been judged by the law. She prayed God would preserve the king, who had been always to her a most merciful, good, and gentle sovereign, and desired, that people would judge of him with charity. She took leave of all the spectators desiring they would pray for her; and after she had spent some time in devotion, her head was severed from her body by the executioner of Calais, who was brought over for his dexterity in performing that operation. Her body was thrown into a common chest, and buried in the tower-chapel without any ceremony. Her brother, with the other convicts, were beheaded, except Smeton, who was hanged. Norris was promised to be forgiven, if he would confess his guilt, and accuse the queen; but he rejected the proposal with disdain, saying, in his conscience, he thought her free of the crimes laid to her charge; and would rather die a thousand deaths, than ruin an innocent person. Thus fell Anne Boleyn whose fate has been the subject of much controversy. She seems to have been a lady of unaffected piety, and a very charitable disposition, though she had by her education in France, contracted a kind of vivacity which did not suit the manners of an English court. She was naturally volatile and in some cases childishly indiscreet: so that in all probability, her heart was better than her understanding. She encouraged learning and genius, distributed great sums in alms; and died a sacrifice to the jealousy and intemperance of Henry, inflamed by the malicious suggestions of those who were enemies to the reformation, which she in a particular manner patronized. Nothing justified Anne Boleyn so much as the conduct of the king, who on the very day that succeeded her execution, married Jane Seymour, so little regard did he pay to common decorum, and the opinion of his subjects; over whom he had by this time acquired the most despotic authority.

ANNEXATION, in law, implies the uniting lands, or rents to the crown.

ANNI Nubiles, in law, signifies the marriageable age of a woman, viz. after she has reached her twelfth year.

ANNIHILATION, the act of reducing any created being to nothing.

ANNIVERSARY, the annual return of any remarkable day. Formerly anniversary days particularly denoted those days on which an office was performed for the souls of the deceased, or the martyrdom of the saints was celebrated in the church.

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ANNO DOMINI, the year of our Lord, the computation of time from our Saviour's incarnation. See **EPOCHÆ**.

ANNOTATION, in literature, a brief commentary, or remark on a book or writing, in order to clear up some passage, or draw some conclusion from it.

ANNOTTO, in dying, a beautiful red colour, formed from the pellicles of the seeds of a tree common in South-America. It is also called orlean, and roucou. The annotto, commonly met with among us, consist of balls moderately hard and dry, of a brown colour on the outside and a dull red within. It is used as an ingredient in varnishes, for giving more or less of an orange cast to the simple yellows. Alkaline salts render it perfectly soluble in boiling water, without altering its colour. Wool or silk boiled in the solution, acquire a deep, but not a very durable, orange dye. When imbibed in cloth, it is discharged by soap, and destroyed by exposure to the air. Labat informs us, that the Indians prepare an annotto much superior to that which is brought to us, of a bright shining red colour, almost equal to carmine: De Laet, in his notes on Marcgrave's Natural History of Brazil, mentions also two kinds of annotto; one of a permanent crimson colour, used as a fucus, or paint for the face; and another, which gives a colour inclining more to that of saffron. This last, which is our annotto, he supposes to be a mixture of the first sort with certain resinous matters, and with the juice of the root of the tree. *Lewis's Notes upon Neumann's Chemistry.*

ANNUAL, an epithet applied to any thing that returns every year, or that is performed in that space of time.

ANNUITY, a yearly or annual rent or revenue, paid either for a term of life, or of years, or in fee, and for ever. In common law, the difference between a rent and an annuity, consists in this, that rent is payable out of land; whereas an annuity charges only the person of the grantor, and that for the recovery of a rent, an action lies: whereas for that of an annuity, there only lies a writ of annuity against the grantor, his heirs, and successors. Add to this that annuities are never taken for assets, as being no freeholds in law. see **INTEREST Simple and Compound**.

ANNULAR, in a general sense, implies something in the form of a ring.

ANNULAR, in anatomy, an epithet applied to several parts of the human body: thus the second cartilage of the la-

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rynix is called the annular cartilage; the ligament that encompasses the wrist, and ties the bones together, is termed the annular ligament; and a protuberance of the medulla oblongata is styled the annular process.

ANNULAR is also a peculiar name for the fourth finger.

ANNULET, in architecture, a small square member in the Doric capital, under the quarter round. See **CAPITAL**.

ANNULET, is also used to imply a narrow flat moulding, common to various parts of the columns, particularly their bases, capitals, &c. Vitruvius calls it a fillet; Palladio, a listel or cincture; Scamozzi, a supercillum, list, tinea, eye-brow, square, and rabbit.

ANNULLING, a term sometimes used for cancelling, or rendering a deed, sentence, &c. void, and of no effect.

ANNUNCIADES, several religious orders instituted in honour of the annunciation.

ANNUNCIATION, a festival celebrated by the church on the twenty-fifth of March, in memory of the annunciation, or tidings, brought by the angel Gabriel to the Virgin Mary, of the incarnation of Christ.

The feast of this annunciation appears to be of very great antiquity. It was observed before the time of the council of Trullo, in which there is a canon forbidding the celebration of all festivals in Lent, excepting the Lord's day, and the feast of the annunciation: so that we may date its original from the seventh century.

ANODYNE, among physicians, signifies a medicine that mitigates or removes pain. See **PAREGORICS**, **OPiates**, and **NARCOTICS**.

ANOMALOUS, in a general sense, is applied to whatever is unequal, irregular, or that deviates from the rule observed by similar things in similar cases.

ANOMALOUS Pulse, among physicians, a pulse whose strokes are unequal with regard to strength.

ANOMALUS Verbi, in grammar, such as are irregularly conjugated, or formed in a manner different from the general rules.

ANOMALY, in grammar, an irregularity or a deviation from the common rules.

ANOMALY, in astronomy, the distance of a planet from the aphelion or apogee; or an irregularity in the motion of a planet, whereby it deviates from the aphelion or apogee. Kepler distinguishes three kinds of these anomalies; mean, eccentric,

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eccentric, and coequate, or true. Mean Anomaly, in the old astronomy, is the distance of a planet's mean place from the apogee. In the modern astronomy, it is the time wherein the planet moves from its aphelion, to the mean place or point of its orbit.

ANOMALY of the *Excentric*, or of the *Center*, in ancient astronomy, an arch of the zodiac, terminated by the line of the apsidæ, and the line of the mean motion of the center.

ANOMOEANS, in ecclesiastical history, the name by which the pure Arians were distinguished in the fourth century, in contradistinction to the Semi-Arians. The word is formed from the Greek, *ἀνόμοιος*, different, dissimilar: for the pure Arians asserted, that the Son was of a nature different from, and in nothing like, that of the Father: whereas the Semi-Arians acknowledged a likeness of nature in the Son; and at the same time that they denied, with the pure Arians, the consubstantiality of the word.

The Semi-Arians condemned the Anomoeans in the council of Seleucia, and the Anomoeans in their turn condemned the Semi-Arians in the councils of Constantinople and Antioch, erasing the word *ἀνόμοιος*, like, out of the Formula of Rimini, and that of Constantinople.

ANONA, in botany, the name of a genus of plants, whose perianthium is composed of three cordated, hollowed, and sharp-pointed leaves; the stamina are scarce visible; but the antheræ numerous: the fruit is a large berry, of an oval figure, covered with a squamose punctuated bark: the seeds are numerous, hard, of an oblong figure, and placed circularly.

ANONIS, *Rest Harrow*, in botany, the name of a plant, which is accounted detergent, good to open obstructions of the liver, and to cure the jaundice. Some affirm it is a diuretic, and proper in suppression of the urine; but it is at present rarely used.

ANONYMOUS, something without a name. It is generally applied to such books as are published without the name of the author; and to such authors whose names are unknown.

ANOREXY, among physicians, implies a want of appetite, or a loathing of food.

It is either an essential disease, proceeding from a fault in the stomach, or derived from other disorders. When it is an original disease, it generally proceeds from a voraciousness, and a hard diet; whence crude and indigested hu-

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mours will arise and prevent digestion, which is often known from a sense of weight in the stomach, or from copious wind and eructations of various kinds, chiefly the nidorous and acid; or from a nausea and reaching to vomit. In old persons, when the whole body is feeble, it may proceed from want of spirits, or the fluids being defective, or from a debility of the contractive force and motions of the stomach, whence an universal decay proceeds. This disorder is often a symptom of other diseases, particularly the acute, as inflammations, asthma, dropsy, hypochondriac passion, melancholy, the gout, vomiting, or dysentery; or when the humours are so corrupt, and the spirits oppressed in malignant diseases, that the faculty of digestion is depraved, or nature may be so busied in expelling another disease, as to neglect this. In the last case it cannot be cured till the disease itself is vanquished. In the spontaneous anorexy, when the stomach is loaded with crudities which cause reaching to a vomit, a single emetic will often perform a cure, joined to a stomachic remedy: but if there is no reaching, the humours are to be incised and digested with bitter salts, such as the salts of bitter herbs, tartar vitriolated, arcanum duplicatum, or the like, given in powder from a scruple to half a dram, several times in a day; or terra foliata tartari, dissolved, to sixty drops or more. After this the cathartic, composed of bitter ingredients, or Epsom salt may be given. When the stomach and intestines are purged, bitter elixirs and tinctures should be used, combined with aromatics, from fifty to sixty drops, or upwards, to restore the tone of the stomach. Candied ginger, orange-peel, or elixir vitrioli, especially when the peccant humour is alkalous or bilious, may be properly added to the infusions of bitter roots and herbs, with aromatics in wine, especially wormwood wine, and the like stomachic liquors. When the crudities of the stomach are acid, absorbents are proper, such as crabs eyes, mother of pearl and coral, and then a suitable purge of aloetic pills or rhubarb, or a bitter cathartic salt. Magnesia alba is likewise useful on this account, being absorbent and useful in the hypochondriac passion. This should be taken for some days, from fifteen to twenty grains; if the dose be enlarged to a dram or two, it will purge pretty briskly. The crudities being evacuated, bitters and aromatics are proper, as well as chalybeates and tinctures of steel; spa waters, and other mineral waters.

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ters of the same kind, together with exercise, and now and then a draught of generous wine will be found very advantageous. Smoking tobacco frequently is hurtful, as well as drinking of drams; the diet should be regular, and the patient must avoid aliments that are hard of digestion, fat, or flatulent, and also intense studies.

ANT, *Formica*, in natural history, the name of an insect, celebrated both for its industry and economy. The sight of ants is really very instructive. They are a little people, united like the bees, in a republic governed by its own laws and politics. They have a kind of oblong city, divided into various streets, that terminate at different magazines. Some of the ants consolidate the earth, and prevent its falling in, by a surface of glue, with which they incrust it. Those which we commonly see, amass several splinters of wood, which they draw over the tops of the streets, and use them as rafters to sustain the roof; and across these they lay another rank of splinters, and cover them with a heap of dry rushes, grass, and straw, which they raise with a double slope, to turn the current of the water from the magazines; some of which are appropriated to receive their provisions, and in the others they deposit their eggs, and the worms that proceed from them. As to their provisions, they take up with every thing eatable, and are indefatigable in bringing home their supplies. You may see one loaded with the kernel of some fruit, another bends under the weight of a dead gnat. Sometimes several of them are at work on the carcase of a May-fly, or some other insect. What cannot be removed, they eat on the spot, and carry home all that is capable of being preserved. The whole society is not permitted to make excursions at random: some are detached, as scouts, to get intelligence; and, according to the tidings they bring, all the community are upon the march, either to attack a ripe pear, a cake of sugar, or a jar of sweet-meats; and, in order to come to this jar, they leave the garden, and ascend the house; there they find this mine of sugar, this rich Peru of sweets, that opens all its treasures to their view. But their march to it, as well as their return from it, is under some regulation: the whole band is ordered to assemble and move in the same tract: but the injunction is not executed with much severity, and they have liberty to expatiate when they have an opportunity of springing any game in the

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country. The green vermin that make an infinite waste among flowers, and cockle the leaves of the peach and pear-trees, are surrounded with a glue, or kind of honey, which is sought for by the ants with great avidity; but they are not solicitous either for the flesh of these creatures, or for any part of the plant. These are the vermin who are the authors of all that destruction to our trees, which is falsely imputed to the ants, and draws upon them a very unjust and cruel persecution.

The ants having passed the summer in a constant employment and fatigue, shut themselves up in the winter, and enjoy the fruits of their labour in peace; however, it is very probable, they eat but little in that season, and are either benumbed, or buried in sleep, like a multitude of other insects; and therefore their industry in storing up provisions, is not so much intended to guard against the winter, as to provide during the harvest, a necessary sustenance for their young. They nourish them, as soon as they leave the egg, with an assiduity that employs the whole nation; and the care of their little progeny, is esteemed a matter of importance to all the state. When the young quit the egg, they are little worms, no longer than common grains of sand, and after they have for some time received their aliment, which is brought to them in common, and distributed in equal proportions, they spin a thread, and wrap themselves up in a white web, and sometimes in one that is yellow: at which period they cease to eat, and become aurelias. In this state some people fancy they are the eggs of ants, when in reality they are the nymphs, out of whose ruins the new pismires are to rise. Though the young discontinue their eating, their nurture still proves very fatiguing to their parents. These have generally several apartments, and remove their young from the nursery to some other mansion they intend to people. They either raise the aurelias towards the surface of the earth, or sink them to a distance from it, in proportion as the season is either warm or cold, rainy, or dry. They raise them when the weather proves serene, or when a long drought is succeeded by gentle dews; but, at the approach of night and cold, or the appearance of showers, they clasp their beloved charge in their arms, and descend with them to such a depth, that one must then dig above a foot into the earth before those aurelias can be discovered.

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ANT-EATER, in natural history, the name of an American quadruped that lives upon ants. This creature is as long and as tall as a middle-sized dog. When he has found a nest of ants, he opens the upper part of it with his claws, that he may have room to put in his snout, and long slender tongue. This is besmeared with a slimy liquor, and is soon covered with ants, when he draws it into his mouth and swallows them. He repeats this practice, as long as they will run into the same snare.

ANT-HILLS, in husbandry, little hillocks of earth which the ants throw up for their habitation for the breeding their young. They are a very great mischief to dry pastures, not only by wasting so much land as they cover, but by hindering the scythe in mowing the grass, and yielding a poor hungry food pernicious to cattle.

Human dung destroys them most effectually, as is proved by experiment; for it will kill great numbers of them, and drive all the rest away, if only a small quantity of it be put into their hills.

ANTA, in natural history, the name of an animal common in Brazil, and called tapierete. It is as large as a calf, but resembles a hog in shape, especially the head, which terminates in a point in the upper part. It has a proboscis over the mouth, which it can contract or extend at pleasure. It has no tail; and the skin is hard: and, while the animal is young, it is covered with short hair of a darkish colour, variegated with white spots; but when it has done growing, the colour is yellow, and without spots. It feeds chiefly in the night, on grass, sugar-canes, cabbages, and the like. The flesh has a taste like beef, but not very agreeable. The Indians make a sort of helmet of their skins, which cannot be penetrated without an arrow.

ANTAGONIST Muscles, in anatomy, those muscles which have opposite functions, as flexors and extensors, abductors, and adductors, &c.

ANTARCTIC, something opposite to the Bear, a constellation near the north pole.

ANTARCTIC Circle, in geography and astronomy, a small circle of the sphere, $23^{\circ} 33'$ distant from the south pole.

ANTARCTIC Pole, the same with south pole. See **SPHERE**.

ANTARES, in astronomy, the name of a star of the first magnitude, called

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also the scorpion's heart. Its longitude is $6^{\circ} 13' 14''$ off Sagittarius; and its latitude $4^{\circ} 31' 26''$ S.

ANTECEDENT, in a general sense, something that goes before another, either with regard to time or place.

ANTECEDENT, in grammar, the word to which the relative refers. Thus in the sentence, "The book that we read," the word book is the antecedent.

ANTECEDENT, in mathematics, the first of two terms in a ratio, being that which is compared to the other. Thus in the ratio of x to y , x is the antecedent. See **RATIO**.

ANTECEDENT Signs, among physicians, such signs as are observed before a distemper is formed sufficiently to be reduced to any particular class. Thus a bad disposition of the blood is an antecedent sign, because it precedes an infinite number of diseases.

ANTECEDENCE, *Antecedentia*, in astronomy, an apparent motion towards the west, or contrary to the order of the signs.

ANTECHAMBER in architecture, the chamber that leads to the chief apartment.

ANTEDATE, in law, a spurious or false date, prior to the true date of any writing.

ANTEDILUVIAN, in a general sense, implies something that existed before the deluge.

It does not appear that either Adam or his descendants before the flood, had much knowledge of what is now called philosophy, either natural, or moral, especially the former. We find honest laborious men before the flood, who applied themselves to agriculture, preserved their primitive traditions, tended their flocks, and retained a true knowledge of God; but were no philosophers: wherefore it is in vain to seek the origin and rise of philosophy in the time preceding the flood.

ANTEDILUVIAN Philosophy, the philosophy of the patriarchs before the deluge.

ANTEDILUVIAN World, the earth as it existed before the deluge.

* **ANTEGO**, or **ANTIGUA**, one of the Caribbee islands inhabited by the English, about sixty miles in circumference, containing five parishes, four of which are towns, viz. St. John's Town, the capital, Falmouth, Parham, and Bridge-Town. The name of the remaining parish is St. Peter's. In 1707, it was said to contain eight thousand whites and twenty-four thousand blacks. The inhabitants make about sixteen thousand hog-heads of sugar every year, but not half

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So much rum, and plant but very little tobacco. Their chief inconvenience is the want of water, which obliges them to save as much rain-water as they can, and to fetch fresh water from the other islands. There are several good harbours, but dangerous to sail into without a pilot, on account of the rocks. There were some English families settled here so early as 1536; but they did not make any figure till 1680. In 1736, the Negroes designed to rise and make themselves masters of it, which would have been effected, if the plot had not been timely discovered. Many of the ring-leaders were punished with death in different manners. The weather is hotter here than at Barbadoes, and the soil is sandy; however they have the same animals as in the other islands, with very great plenty of fowl and black cattle; and wild cinnamon grows in the lower parts of the island. Long. 62. 5. W. Lat. 17. 30. N.

ANTELOPE, in natural history, an animal called, by Latin authors, *gazella Africana*, and thought by some to be the same as the Lybian goat. The antelope is very swift; has a white belly, and the rest of the body of a fallow colour; the white and the fallow on the sides are parted by a black stripe; the eyes are black, the ears large, the tail blackish, and a stripe a little more brown, than the rest of the hair descending from the eye down to the muzzle. He is about the size of a roe-buck, and his hair very short. Under the hair the skin is black and shining, though in some it is greyish. The ears are large and bald within, where the skin is black, like polished ebony. The eyes are black and large; and the horns are likewise black, striped cross-ways. They are about fifteen inches long, and near an inch diameter at the bottom. They are sharp at the points, and pretty straight, though they turn a little outwards in some places, and in others inwards. The horns of the male are bent a little more back than those of the female, which are very round; but those of the male are a little flattish.

ANTEPENULTIMA, in grammar, the third syllable of a word from the end, or the last syllable but two.

ANTHEM, a church song, consisting of some passages of scripture set to solemn music.

ANTHERÆ, in botany, the small roundish or oblong bodies on the tops of the stamina of plants. See **STAMINA**.

ANTHOLOGY, a discourse on flowers; or a collection of beautiful passages from famous authors.

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St. ANTHONY's Fire, a name sometimes given to the erysipelas. See **ERYSIPELAS**.

ANTHORA, yellow helmet flower, counterpoison monks-hood, or wholesome wolfsbane, in botany, the name of a plant. It is distinguished from the other aconites or wolfsbanses by the leaves not being glossy, by their being cut quite down to the pedicle, and by the segments being very narrow, and of nearly the same width from end to end.

ANTHROPOMORPHITES, a sect of heretics, so denominated from the Greek, signifying man, and shape; for taking every thing spoken in scripture of God in a literal sense, particularly that passage in Genesis, in which it is said, that God made man after his own image, imagined him to be in the shape of a man, having real hands, feet, &c.

ANTICHRIST, among ecclesiastical writers, a great adversary of Christianity, who is to appear upon earth before the end of the world.

ANTICOR, in farriery, an inflammation of a horse's throat, being the same with the quincy in the human species.

ANTIDOTE, among physicians, a remedy against pestilential diseases. It also signifies a medicine which prevents the ill effects of poison.

ANTIEN, or **ANCIEN**, a term applied to things that existed long ago.

ANTIEN, in a military sense, implies the ensign or colours.

ANTIEN, in naval affairs, the flag carried at the stern of a ship.

ANTIMONARCHICAL, a name given to whatever opposes monarchical government.

ANTIMONY, in natural history, a blackish mineral substance, staining the hands, full of long, thinning, needle-like stræ, hard, brittle, and considerably heavy. It is found in different parts of Europe, as Bohemia, Saxony, Transylvania, Hungary, and France, commonly in mines by itself, intermixed with earthy or stony matters. Sometimes it is blended with the richer ores of silver, and renders the extraction of that metal difficult; antimony volatilizing a part of the silver, or, in the language of the miners, robbing the ore. Antimony is separated from its natural impurities by fusion in an earthen pot, whose bottom is perforated with a number of holes; the fluid antimony passing through, whilst the infusible matters remain behind. Antimony has been by many esteemed a poison. In 1566, its use was prohibited in France by an edict of

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of parliament; and in 1609, one Besnier was expelled from the faculty for having given it. The edict was repealed in 1650; antimony having a few years before been received into the number of purgatives. In 1668, a new edict came forth, prohibiting its being used by any one but the doctors of the faculty. Others again have been extravagantly fond of it, and ascribed to it extraordinary virtues, as Alexander Van Shuten, Glauber, and Faber: Basil Valentine ranks it among the wonders of the world, and places it in a triumphal car. Thus much is certain, that antimony, in its crude state, is not a poison, but a medicine of great efficacy; an excellent resolvent and purifier of the juices, if given from four grains to half a dram, along with absorbents: that it is capable of being rendered, by various operations and additions, either truly poisonous, or more medicinal than in its crude state: that its most virulent preparations may, by slight managements, be made salutary; and its most salutary ones virulent. Antimony is not a pure femimetal, but a sulphurated femimetal. The sulphur of antimony, purified from the metallic part, is perfectly the same with the common brimstone of the shops, possessing the same properties, and answering the same uses. As gold is the only metal (platina excepted) that totally resists antimony or its sulphur, this mineral has been called by the chymists *balneum solis, balneum regis, lupus, ultimus judex, &c.*

Metallic bodies separated by fusion, or dry precipitation, are commonly called Reguli, especially when brittle. The metallic part of antimony, in particular, is distinguished by no other name than that of regulus of antimony.

Pure regulus of antimony, is a bright femimetal, resembling tin or dusky silver; without any thing of the bluish cast of zinc, or the yellowish one of bismuth. It is one of the lightest of the metallic bodies, (about seven times specifically heavier than water, moderately hard, entirely brittle, and of a sparkling plated texture.) In a fire not very strong, it smokes copiously, and by degrees totally evaporates: by a gentler fire, continued for some time, it is changed into a whitish calx; which, on raising the heat, melts into a yellowish or reddish glass. Melted with silver, or the malleable metals, it renders them hard and brittle. It destroys the magnetic power of iron, which other metallic bodies only weaken in proportion to their quantity. It does not amalgamate, or not without great difficulty, with mercury:

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if a mixture of it with silver and copper be reduced into fine powder, even those metals will not, in that state, be acted upon by mercury. In the human body it acts as a virulent emetic and cathartic; and impreguates vegetable acids, as vinegar and acid wines, with those virtues, almost inexhaustibly. By sulphur, and by calcination with nitre, its malignity is abated, and its emetic power changed into a diaphoretic one. As soon as it is restored to its pure metallic state, it resumes its virulence; which may be again destroyed, and again restored, and almost infinitely varied.

Preparations of ANTIMONY. The preparations of antimony are numerous. Lemery, in his Treatise on Antimony, describes no less than two hundred; among which there are many good, and many useless ones. That gentleman was an excellent chemist, but an unhappy philosopher: we may depend on his operations, but we should distrust his theory. With regard to the antimonials, the greater number even of the common preparations are unnecessary; many of them differing little from one another, and all of them being either emetic or diaphoretic. The preparations of antimony may be ranged, according to the general operations by which they are produced, under four heads; those obtained by solution, by distillation, by sublimation, and by calcination.

All the antimonial sulphurs are emetic and cathartic: those which precipitate first are much more strongly so than the powder which falls last; the last precipitates, if they prove emetic once or twice, cease to have that effect upon continuing their use, and act chiefly as diaphoretics; and hence are greatly to be preferred to the first.

Butter of ANTIMONY.—For dissolving the regulus of antimony without the sulphur, the most concentrated spirit of salt, or aqua regis, is necessary. For obtaining the solution in spirit of salt, mercury sublimate and powdered antimony are mixed together, and digested in a glass-retort placed in sand: the marine acid in the sublimate forsakes the mercury, and corrodes or dissolves the antimonial regulus; whilst the mercury of the sublimate unites with the antimonial sulphur. But the solution of the regulus, thus effected, cannot be commodiously separated from the other matter but by distillation: on increasing the fire, the regulus arises, dissolved in the concentrated acid not in a liquid form, but in that of a thick unctuous substance, like butter; hence called butter of antimony. The butter liquifies

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by heat; and requires the cautious application of a live coal to melt it down from the neck of the retort. By rectification or exposure to the air, it becomes fluid, but still retains the name of butter. The addition of water, either in its thick or fluid state, by diluting the acid, precipitates the regulus dissolved in it. The proportions of sublimate and antimony commonly employed, are three parts of the former to one of the latter.

Flowers of ANTIMONY are prepared by subliming either the crude antimony, or the regulus, with a number of aludels; the fire being kept up strong, and a blast of air impelled occasionally by a pair of bellows upon the matter in the subliming pot, to promote its evaporation. The antimonial flowers are in general of great activity, and though recommended by some as arcana in particular disorders, require to be used with great caution.

Cinnabar of ANTIMONY.—After the distillation of butter of antimony, the mercury and the sulphur, contained in the ingredients made use of for that process, remain behind in the retort. This compound appears of a black colour; urged with a stronger fire than that which elevated the butter, it sublimes into a red mass, called cinnabar of antimony. This cinnabar has been by many preferred to the common factitious cinnabar, but on no just foundation: they both consist of mercury combined with sulphur; and the only difference betwixt them is, that the antimonial cinnabar contains somewhat more sulphur than the other, and hence appears of a darker colour.

Glass of ANTIMONY.—This is chiefly prepared by some particular persons at Amsterdam and Rouen, who have furnaces contrived on purpose for calcining large quantities of antimony with little expence of fuel. The glass may be easily made, by urging the calx in a crucible with a strong fire, and throwing in, towards the end, a little crude antimony or sulphur. When the vitrification is completed, the glass is poured on a copper plate, or on a flat stone. The glass of antimony is used only for making other emetic preparations, as the emetic wine, &c.

Hepar ANTIMONII, liver of antimony.—Equal parts of crude antimony and nitre mixed together, set on fire and suffered to deflagrate in an iron mortar, which may be covered with a perforated plate, or injected by degrees into an ignited crucible, yield a liver-coloured mass, called hepar antimonii, which pulverized and edulcorated with water is named crocus

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metallorum. Two, three, or even one grain of either of these preparations occasion violent anxieties and vomitings; though a dog will bear a dram, and a horse a whole ounce, without being apparently any otherwise affected than in having the alvine discharge increased. The emetic wine, emetic tartar, and other medicines made from the glass, may also be made from the crocus.

Diaphoretic ANTIMONY.—One part of antimony and two and a half or three of nitre, mixed together and deflagrated, yield a calx void of all emetic power, called diaphoretic antimony.

Regulus of ANTIMONY.—The simple regulus of antimony is commonly prepared from equal parts of antimony, nitre, and tartar, mixed together and injected into a red hot crucible: when the whole is thrown in, the crucible is to be covered, a strong fire kept up for a quarter of an hour, and the matter poured out into a conical mould, previously warmed and rubbed with grease. The yield of regulus will be larger, if the quantity of nitre is diminished; or if the nitre and tartar are deflagrated together, in the proportion of one part of the former or two of the latter, before their mixture with the antimony. The salts are reduced by the deflagration into a black alkaline coal; this is the substance commonly used by the chemists for promoting the fusion of metallic calces, and reviving them into their metallic form, and hence is distinguished by the name of black flux. Some have been accustomed to save the expence of nitre, by taking potash or other alkaline salts: the regulus is in both cases the same. When the matter is grown cold, the scorix found on the surface are knocked off, the regulus reduced into coarse powder, melted in a fresh crucible, and about one fourth its weight of purified nitre injected upon it; this depuration may be twice or thrice repeated with smaller proportions of nitre, till the scorix become semitransparent and of an amber colour.

Martial Regulus of ANTIMONY.—This preparation is obtained very commodiously from four parts of powdered antimony, two parts of iron nails or wire, and one part of nitre. The iron, made red-hot in a crucible, soon melts upon adding the antimony; after which the nitre is to be injected, the crucible covered, and the matter when brought into thin fusion, poured expeditiously into a warm greased cone. The regulus freed from the scorix, is to be melted afresh, with about one fourth its weight of nitre; and this purification, if necessary,

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necessary, repeated. If the regulus retains any superfluous iron, it will look greyish, spongy, prove hard to break, and difficult of fusion: in such case, the scorification of all the iron, by means of nitre, would be a tedious work; but the addition of a little crude antimony, or common sulphur, will absorb it at once; and the injection of nitre will now soon complete the purification, and render the regulus of a sparkling white colour. The scorix are yellow and semitransparent like amber; if the quantity of nitre has not been too large, they prove an excessively strong fiery alkali, distinguished by the name of *nitrum causticum*. The yellow scorix, which separate in the depuration of the simple regulus with nitre, are likewise alkaline, but want the causticity of these: the scorix produced from the martial regulus, by calcination with tartar, take fire on being exposed to the air. If either regulus, after due purification, be hastily poured into the mould whilst in exceeding thin fusion, and if the quantity of scorix covering the surface is considerable, the regulus, when grown cold, exhibits the appearance of a star upon the top. For producing this appearance, there is no occasion for any particular sort of antimony, or any particular iron, or any particular constellation, or season, or weather, as many have idly imagined; the whole depending upon the circumstance abovementioned.

The simple regulus is cast into cups, which, like those made from the glass, communicate an emetic quality to wines; and into pills, like shot, which prove strongly purgative, and do not lose their virtue in passing through the body; whence their name *pilulæ perpetuæ*.

Tincture of ANTIMONY---There are various tinctures of antimony, which some have fondly imagined to participate of solar, venereal, antimonial, and other impregnations. They appear to be all no other than simple alkaline tinctures; their colour proceeding from the only matter of the spirit of wine, heightened by the caustic alkali. Spirit of wine consists of an oil highly attenuated and combined with water into one seemingly homogeneous liquor: if the most highly rectified spirit, which exhibits no mark of any phlegm, be employed for making these tinctures, it will now yield in distillation a good quantity of water; the oil, before combined with that water, having been absorbed by the alkali. If caustic alkaline salt, alone, be poured hot into rectified spirit, and the mixture digested for some time, a tincture will be obtained, not distinguishable from the antimonial. If sulphur be added in either

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case, the tincture will receive a considerable taste and smell from that ingredient.

ANTINOMIANS, in ecclesiastical history, certain heretics, who first appeared in the year 1535. They were so called, because from rejecting the law, as of no use under the Gospel dispensation. They held, that good works do not further, nor evil hinder, salvation; that God never chastises any land for their sins; that murder, adultery, drunkenness, and the like, are no sins in the children of God; that an hypocrite may have all the graces that were in Adam before his fall, &c.

* **ANTIOPE**, in fabulous history, was the wife of Lycus, king of Thebes, who being deflowered by Jupiter in the form of a satyr, brought forth Amphion and Zethus. Another Antiope was queen of the Amazons, and with the assistance of the Scythians, invaded the Athenians, but was vanquished by Theseus.

ANTIPARALLELS, in geometry. See **CONE**.

ANTIPATHY, a natural aversion of one body to another, the opposite to sympathy.

ANTIPHRAISIS, in rhetoric, a figure, by which, in saying one thing, we mean the contrary. See **IRONY**.

ANTIPODES, in geography, a name given to those inhabitants of the globe that live diametrically opposite to each other. The antipodes lie under opposite meridians and opposite parallels; in the same degree of latitude, but of opposite denominations, one being north, and the other south. They have nearly the same degree of heat and cold, days and nights of equal length. But in opposite seasons, it is noon to one, when midnight to the other; and the longest day with the one, is the shortest with the other. We have said the antipodes have nearly the same degree of heat and cold, not absolutely the same of necessity; because, first, there are many accidents to modify the action of the solar heat; so that people situated in the same climate, have not the same temperature of air. This may, in general, be accounted for by the interposition of mountains, the nearness or distance of the sea, the winds, &c. Secondly, the sun is not throughout the whole year at the same distance from the earth; it is sensibly at a greater distance in the month of June, than in January; from whence it follows, that *consideratis considerandis*, our summer in England is not so hot as that of our antipodes, and our winter less cold. Nay, ice is found in the seas of the southern hemisphere, at a much less distance from the equator, than in those of

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of the northern hemisphere. The horizon of one place being 90 degrees distant from the zenith of the other, it follows, that the antipodes have the same horizon; it follows also, that when the sun rises to the one, he sets to the other. The antients in general, treated this opinion with the highest contempt; never being able to conceive how men and trees could subsist suspended in the air with their feet upwards; for so they apprehended they must be in the other hemisphere. They never reflected that these terms, upwards and downwards, are merely relative; and signify only nearer to, or farther from, the center of the earth, the common center to which all heavy bodies gravitate; and that, therefore, our antipodes have not their feet upwards and head downwards any more than ourselves; because they, like us, have their feet nearer the center of the earth, and their heads further from it. To have the head downwards, and feet upwards, is to place the body in a direction of gravity tending from the feet to the head; but this cannot be supposed with regard to the antipodes; for they, like us, tend towards the center of the earth, in a direction from head to foot. We have considered the antipodes here as being placed diametrically opposite on the terrestrial globe; so that a perpendicular or vertical line being drawn through any place whatever, and which consequently passes through the zenith of that place, the opposite part on the surface of the globe, which this vertical line continued would cut, is the situation of the antipodes to that place: this depends on a supposition of the earth's being a perfect sphere; for if the earth be not a perfect sphere, but an oblate or prolate spheroid, there are no reciprocal antipodes: that is, for instance, if a line be drawn through the zenith of London, and center of that city, which is in the northern hemisphere, this line would cut the southern hemisphere in a point which will be diametrically opposite to London; but London then will not be the antipodes to this place. Thus the reciprocal equality of situation, latitude, day and night, in the opposite hemispheres at six months distance, and all that we are used to include in the idea of antipodes, as inseparable from it, is no longer so; and must alter, in proportion as the figure of the earth deviates from a true sphere. A little attention will convince us of this. What we have advanced is founded on this position, that the sphere, or, to render the theory more simple; the circle, is the only regular figure which all diametrical lines drawn through the center

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cut at right angles: therefore, in every figure terminated by another kind of curve, to instance in the ellipsis, the perpendicular drawn to one of its foci, or to its tangent, except the two axes which correspond to the polar line, or a diameter drawn at the equator, will not pass through the center, nor cut the opposite part of the ellipsis at right angles; therefore the nadir of Paris or London is not the zenith of their respective antipodes. So if, in the center of London or Paris, a perpendicular column were erected, and another in their respective antipodes, it would not make the same right line, but would form an angle more or less acute, in proportion as the ellipsis departed more or less from a circle; and, consequently, the latitude, days, nights, seasons, &c. would alter in the same proportion. Places situated under either pole, or on the equator, are excepted for the reason we have before suggested; because, in the former case, it is one of the axes of the ellipsis that joins both foci, and in the latter it is always a circle, the other axis of which is the diameter of the ellipsis; the spheroid, however oblate or prolate, being always supposed to result from the revolution of the elliptical meridian round the axis of the world. See *History Acad.* 1741.

ANTIPTOPSIS, in rhetoric, a figure which puts one case for another.

ANTIQUARIAN Society.---A society of antiquaries was formed in the city of London, 1580, by some of the most learned men in the kingdom; but, having been frequently interrupted and discontinued, very little can be said concerning it till 1717, when it was again revived by a number of gentlemen, studious of antiquity in general, but more particularly desirous to obtain all possible knowledge of the antiquities of their own country. With this view they agreed to meet one evening in every week under certain regulations; they encouraged correspondencies with all parts of the kingdom; they subscribed an annual sum to defray the expence of engraving on copper-plates, what should be thought deserving to be so preserved, and limited their number to 100. And in this manner they continued their weekly meeting with great reputation, till his majesty king George II. was graciously pleased to grant them a royal charter of incorporation, dated November 2, 1751; and to declare himself their founder and patron. Under this charter they became a body corporate, by the name of the Society of Antiquaries of London, with a power to have

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have and use a common seal, to sue and be sued, and to take, hold, and enjoy by purchase, gift, or otherwise, any lands, tenements, or hereditaments, not exceeding in the whole one thousand pounds per annum. And it is therein directed, that the council of the said society shall at all times consist of twenty-one persons, the president, for the time being, always to be one: and Martin Folkes, Esq. was by charter appointed the first president; and also twenty other persons therein named to be the first council, empowering them, within two months from the date thereof, to nominate, choose, and admit, as fellows of the said society, such persons as should excel in the knowledge of the antiquities and history of this and other nations, and be eminent for piety, virtue, integrity, and loyalty. This first president and council were to continue till the 23d day of April next ensuing, on which day, in every year hereafter, the council and fellows assembled to nominate and elect a president and council for the ensuing year; and it was particularly directed that eleven of the former council should be continued, and ten other persons chosen out of the members of the society; ten and no more of the council being to be changed annually. The president is empowered to nominate four persons of the council to be his deputies, and supply his place in case of sickness or absence; and the president, council, fellows, or any twenty-one or more, are empowered to make statutes, rules, orders, and by-laws, for the government and direction of the said society, their estates, goods, &c. and for the admission and removal of all and every the members and officers thereof. And the president, council, and fellows, may at any time appoint treasurers, secretaries, and clerks, may have and employ one serjeant at mace, and such other servants as they think necessary. And lastly, if at any time abuses or differences should arise, the archbishop of Canterbury, the lord chancellor, or keeper of the great seal, and the lord privy seal, and the two secretaries of state for the time being, were appointed visitors, with the full power for any three of them to compose and redress such differences and abuses: provision is also made to fill up any vacancies that should happen by the death of the president or any of the council. On the receipt of this charter, the first president and council nominated and admitted, by a writing dated the 14th of November 1751, all the former members, together with some

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others, in the whole one hundred and twenty-one, to be fellows of the said Society of Antiquaries of London; and soon after drew up a body of statutes for the good government thereof, which was unanimously agreed to and confirmed in the month of July 1752. It was enacted, that the number of members should not exceed one hundred and fifty: but that number being very soon filled up, and several men of quality and fortune, as well as persons of great learning and eminence, being continually applying to become members, which they could not be till the vacancies should happen by death, the society thought proper, in the year 1755, to enlarge their number to one hundred and eighty, (to which they are limited at present) exclusive of peers, privy-counsellors, and judges, that should be chosen after that time. A little before this, the society gave up the management of their estate and revenues, the payment of monies, and the publication of their papers and drawings, which before were in the body in general, and thereby attended with many inconveniencies, entirely to the care of their council, which are now a standing committee for that purpose; and thereby the government of this society is become nearly the same as that of the Royal Society, which was doubtless a proper pattern to copy after. On the 23d of April, being St. George's day, the society annually elect their council and officers, viz. a president, a treasurer, two secretaries, and a director, who has the care of all their publications. Then the president appoints four of the council to be his deputies, or vice-presidents: and after the election is over, the society dine together at their own expence.

Every person desirous to be elected a fellow of this society, except peers, privy-counsellors, or judges of Great Britain or Ireland, must be recommended by three or more of the members, in a paper signed by themselves, specifying the name, addition, profession, and chief qualification of the candidate, and also the place of his abode. When this has been read at one of the society's meetings, and then hung up in their public room, during the time of four other meetings, the election is determined by ballot. Peers, privy-counsellors, and judges of Great Britain or Ireland, if proposed by any single member, must be balloted for immediately. Every new member must pay an admission-fee of five guineas, and sign the obligation, where-
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by he promises that he will, to the utmost of his power, promote the honour and interest of the society, and observe the statutes and orders thereof: which being done, he is led up to the chair, when the president or vice-president rising, takes him by the hand and says, "I do, by the authority, and in the name of the Society of Antiquaries of London, admit you a fellow thereof." Every member must further pay one guinea annually for the use of the society, or ten guineas an once in lieu of all contributions. The meetings of this society are on Thursday evenings weekly, from about six till nine o'clock. Their business is to receive, read, and consider all informations from their own members, or others, concerning the antiquities of all nations; (for which purpose they admit eminent foreigners to be corresponding members) but they more particularly attend to the study of the ancient history, customs, manners, grants, charters, coins, medals, camps, churches, cities, and all monuments whatever, ecclesiastical, military, or civil, which are found in or relate to Great Britain and Ireland; and the communications they have received concerning these matters must be very valuable, as may be judged by the many curious remains of antiquity they have caused to be engraved on copper-plates, and permitted lately to be sold; though as yet they have not thought fit to publish any of their dissertations. They have a small but choice, library, which is increasing daily: also a fine collection of prints and drawings.

ANTIQUARY, one who studies and searches after remains of antiquity.

ANTIQUE, a term most in use among architects, sculptors, and painters; they make use of it to express pieces of architecture, sculpture, or painting, executed in the ages when those arts were carried to the highest perfection, by men of the finest genius in Greece and Rome; that is, from the age of Alexander the Great, to the reign of the emperor Phocas, about the year of our Lord 600. Antique in this sense is opposed to modern; thus we say an antique edifice, busto, basso relievo, or manner; an antique model; and of a statue, that it is in an antique taste. We have several antique pieces of sculpture left, as the Laocoon and Venus in the possession of the family of Medicis, the Apollo and Hercules of the house of Farnese, &c. Antique paintings are more scarce; we have only the wedding of Al-

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dobrandinus, some little figures of the pyramid of Cestius, a Venus which is the palladium of Rome, and some small pieces in fresco, preserved out of the ruins of the baths of Titus and Heraclius. Some sculptors have counterfeited antiques so nicely as to impose on the judgment of the public; witness the famous story of Michael Angelo's Cupid.

ANTIQUITY, *Antiquitas*; a term used to denote past ages.

Thus we say, the heroes of antiquity, traces or vestigia of antiquity, monuments of antiquity.

We make use of the same word to express what is left us of the ruins, monuments, remains, &c. of the ancients.

In this sense we say a master-piece of antiquity; a fine piece of antiquity; Italy, France, and England, are full of antiquities. Antiquity is also taken for any thing that is ancient. In this sense we say, the antiquity of a kingdom, a custom, or any thing of the like nature.

ANTIRRHINUM, snap-dragon, or calf's snout, in botany a genus of plants, of which bonatists enumerate twelve species. All the sorts of snap-dragon are pretty ornaments in a garden, and, requiring a very little culture, are rendered more acceptable. They are all hardy plants, and will resist the cold of our winters extremely well, especially if they are planted on a dry, gravelly, or sandy soil; for, when they are planted in a rich moist soil, they will grow very luxuriant for a while, but are very subject to rot in autumn or winter; and are much more susceptible of cold, than when they are in a dry, hungry, rocky soil; they will grow in the joints of old walls, where they may be placed so as to make some abject part of the garden agreeable; for they will continue in flower for several months; and if the seeds are permitted to shed, there will be a continual supply of young plants, without any trouble. Wherever those plants are designed to grow upon walls, or on a rocky barren soil, the seeds should be sown the beginning of March, where they are designed to remain (for if the plants are first raised in a better soil, and afterwards transplanted into those places, they seldom succeed well.) When the plants are come up, they will require no other culture, but to keep them clear from weeds; and where they come up too thick, to pull some of them out; so as to give them room to grow. In July these sorts will begin to flower, and will continue flowering till the frost prevents them.

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them. Those plants which grow on walls, will be strong, and have woody stems, which will continue two or three years or more. *Miller's Gard. Dict.*

ANTISCII, in geography, those who live on different sides of the equator.

ANTISCORBUTICS, among physicians, medicines good in all scorbutic cases. See **SCURVY**.

ANTISEPTICS, among physicians, a name given to all substances that resist putrefaction. Dr. Pringle, was, in an appendix to his *Observations on the Diseases of the Army*, the first, who gave a very curious and useful set of experiments on antiseptics.

ANTISTROPHE, in the ancient drama, the stanza repeated by the chorus to the audience on the left-hand; the word being derived from the Greek, signifying, against, and to turn. Thus the strophe signifies the stanza, or those verses which the chorus sing, turning themselves towards the spectators on the right hand; and the antistrophe means the same stanza sung by the chorus, turning themselves towards the audience on the left. In rhetoric, the antistrophe or epistrophe signifies repartee; as for example, if, after having said the man of such a master, we add, and the master of such a man; this last phrase is an antistrophe, or expression, in reply to the first. This is also a term used in ancient lyric poetry. Among the Greeks, the antistrophe made one of the three parts of their ode; the other two were called the strophe and epode.

ANTITHESIS, in rhetoric, a figure of speech, which consists in opposing the thoughts to each other, in order to place their opposite qualities in a more conspicuous point of light.

ANTITHESIS, in grammar, a figure whereby one letter is substituted in the room of another; as when Virgil says, *illi for illi*, in order to make a kind of opposition.

ANTITRINITARIANS, those who deny the Christian doctrine of the Trinity; but particularly applied to the Arians and Socinians.

ANTITYPE, a Greek word, signifying according to the true import of the word, a type which answers to another type, or rather that which is in the place of a type.

ANTLER, among sportsmen, a start or branch of a deer's horn.

Brow **ANTLER** signifies the branch next the head.

Bes **ANTLER**, the branch next above the brow antler.

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ANTCECI, in geography, those inhabitants of the earth who live under the same meridian, and at the same distance from the equator, the one towards the north, and the other towards the south. The Anteci have exactly the same hours of the day and night, but opposite seasons; the shortest winter's day of the one being the longest summer's day with the other; and consequently the length of the night with the one, is equal to the length of the day with the other.

* **ANTONIA**, daughter of Marcus Antonius and Octavia, one of the most beautiful and virtuous princesses of her time, married Drusus, the brother of Tiberius, by whom she had Germanicus, an accomplished prince, Claudius, who was afterwards emperor, and Livia, who rendered herself infamous by her crimes. Though she lost her husband while she was young, she could never be prevailed upon to marry again, and thus gave an excellent example of continence in a debauched court. Antonia discovered to Tiberius the designs of Sejanus. She had at first some share in the management of affairs under Caligula, her grandson; but he at length gave her so much vexation, that she died A. D. 38. She was probably poisoned by that unnatural prince.

Tower of **ANTONIA**, in antiquity, the most magnificent monument which Herod the Great ever built; he gave it that name in memory of Anthony his friend: it was built on the hill of Jerusalem formerly called Barri.

ANTONIAN Water, the name of a medicinal water of Germany, remarkably pleasant to the taste, and of service in many cases as a medicine.

* **ANTONIUS (MARCUS)** the triumvir, generally called by English Writers Mark Antony, was the son of Marcus Antonius Creticus. He was beautiful in his youth, and adorned with many amiable qualities; but Curio, who loved him, plunged him into all manner of vices, and afterwards paid the debts he had contracted by his debaucheries. He also esteemed Clodius; but soon growing disgusted with him, went into Greece, where he exercised his body in military labour, and his mind in the study of eloquence. He was at length sent by Gabinus against Aristobulus, whom he conquered and took prisoner; and afterwards followed Gabinus into Egypt, where he distinguished himself by his clemency and valour. At his return to Rome he embraced Cæsar's party, and Marcus Antonius went with Quintus Cassius, in the disguise of slaves,

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to Cæsar's camp in Gaul, advising him to march into Italy. Cæsar having made himself master of Rome, rewarded Marcus Antonius with the government of Italy, and at the battle of Pharsalia, gave him the command of the left wing of his army. The next year, Cæsar being created dictator, made Marcus Antonius general of the horse; and five years after, his colleague in the consulship; soon after which Cæsar was assassinated. Antonius then assembled the senate, when reading Cæsar's will, and shewing his bloody robe, he harangued the people with such success, as to excite a sedition. His power now increased every day; but having quarrelled with Octavius, who was a favourite of the people, he retired to Gaul. The senate suspecting he aspired to the throne, sent Octavius and the consuls C. Pansa and A. Hirtius against him. Antonius however defeated them near Mutina, and was afterwards defeated in his turn: but he had the address to bring over the soldiers of Lepidus to his party; he also brought over Plan- cius to his interest; and having raised six legions in Gaul, marched into Italy with seventeen legions and ten thousand horse. This obliged Augustus and Lepidus to enter into a league with him, and thus was formed the celebrated triumvirate, that became fatal to Cicero, and so many great men. The triumvirate having sufficiently confirmed their power, determined on the death of Brutus and Cassius. Octavius and Antonius marched against them into Macedonia, and defeated them, when Cassius was slain by Antonius's order and Brutus killed himself. After their death they divided the empire among themselves: Augustus had Europe; Lepidus, Africa; and Marcus Antonius, Greece and Asia; where he conceived a violent passion for Cleopatra, queen of Egypt. During his absence, Fulvia, his wife, had a quarrel with Octavius, which occasioned a new rupture, but this war was but just begun when Fulvia died, and her death produced a fresh union, one of the conditions of which, was, that Antonius should marry Octavia, the sister of Augustus. Antonius, still passionately fond of Cleopatra, left his children, and Octavia, to go to Cleopatra in Egypt, and Octavia left Rome to bring back her husband to his duty; but Antonius ordered her to stop at Athens. This contempt, together with other motives, rekindled the war, which was terminated by the famous naval battle of Actium, thirty-one years before the Christian æra. Cleopatra, who had brought

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sixty vessels to Antonius's assistance, fled; Antonius followed her, and by that means lost the victory. The next year Augustus entered Egypt, and first seized Pelusium, Antonius fell on his cavalry and defeated them; but he was at length conquered: after that, Cleopatra causing him to be told that she had killed herself, he ran a sword through his body; but not dying immediately, and hearing that Cleopatra was still alive, he caused himself to be carried to her, and died in her arms, in the fifty-sixth year of his age. Antonius was a brave and excellent general; a tender generous friend; was eloquent and capable of supporting the inclemencies of the season; but his foolish fondness for Cleopatra, was the cause of all misfortunes.

ANTONOMASIA, in rhetoric, a figure by which the noun appellative is used instead of a proper name, and the contrary. Thus because Sardanapalus was a voluptuous prince, and Nero a cruel emperor, we give an epicure the name of Sardanapalus, and a barbarous prince the appellation of Nero.

ANTWERP, a city in the Austrian Netherlands, seated on the Scheld, in the duchy of Brabant, and the capital of a marquisate of the same name. It is a bishop's see, and has very regular fortifications. It is seven miles in circumference, and surrounded with a beautiful wall, with bastions faced with stone. The top of the wall is two hundred feet broad, and planted on each side with rows of trees, between which there are walks, with a most delightful prospect of the adjacent country. The streets are broad and regular, the buildings magnificent, and the whole beautiful and uniform. There are twenty-two squares, two hundred streets, eight great canals, and seventy-four bridges. The cathedral church is a noble pile, the steeple being one of the finest in the world, from whence may be seen Ghent, Mechlin, and Louvain. The altars are adorned with fine paintings, some of them by Rubens. The Jesuits church there is one of the finest in Europe, for its dimensions, workmanship, and paintings. All the inside is of white marble, intermixed with jasper, porphyry, and gold; and the ceiling is embellished with forty-eight pictures of Rubens. There are several convents particularly one for English nuns of St. Teresa, who never wear linen, nor eat flesh, but lie upon straw. Joining to the street called the Mere, stands the Exchange, which is the model of the Royal Exchange. It is placed in the

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the centre of four large streets, and the walks on each side are supported by forty-three pillars of blue marble, but none of them are alike. Underneath there are magazines, or warehouses, for the merchants goods; and above, an academy for painting, sculpture, architecture, and the mathematics.

The citadel is one of the strongest and most regular in the world. It is of a pentagonal figure, and has five royal angles. The French besieged and took it in 1746. The markets here are at their proper distances, every one being in a square. Antwerp had formerly a most flourishing trade, but it is now removed to Amsterdam, and other towns of Holland, the Dutch having built forts at the mouth of the Scheld. The city is governed by nine persons, taken from the nobility, and as many are nominated by the prefects or masters of the streets, who, with eighteen of the principal citizens, make thirty-six; these are presented to the prince, who appoints one half of them for a standing senate; which afterwards choose two burgomasters, or consuls; one of whom represents the city at the convention of the estates, and the other administers justice at home, having with the senate the cognizance of all causes, civil and criminal. The city has also a sheriff, for the apprehending and executing malefactors; and a solicitor-general to prosecute offenders in behalf of the city. Long. 4. 15. E. Lat. 51. 12. N.

ANUBIS, in mythology, a name given to Mercury, who was worshipped by the Egyptians under the figure of a dog. Diodorus Siculus tells us, that Anubis, following his father Osiris to war, bore the ensign of a dog on his shield; for which reason he was worshipped, after his death, under the figure of a dog.

ANVIL, in mechanics, a smith's utensil, on which the work is forged or hammered.

ANUS, in anatomy, the extremity of the intestinum rectum, or orifice of the fundament. It is surrounded with a large quantity of fat, that it may easily dilate in discharging its contents, and is furnished with three muscles, called elevatores and sphincter. See **SPHINCTER**.

ANUS is also the name of a small aperture in the third ventricle of the brain, leading to the fourth ventricle of the cerebellum.

AONIDES, in mythology, one of the many appellations of the muses, so called from the Aonian mountains in Bœotia, where they were feigned to reside.

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AORASIA, in antiquity, invisibility of the Gods.

The opinions of the ancients, with regard to the appearance of the gods to men, was, that they never shewed themselves face to face, but were known by their backs as they withdrew: whence it followed, according to them, that every being they had time to look at in the face, was not a deity.

AORISTUS, in the Greek grammar, an indefinite or indeterminate kind of tense, which sometimes expresses the present time, sometimes the future, but most frequently the past. The word is compounded from the Greek, to bound or limit.

AORTA, in anatomy, the great artery which rises immediately from the left ventricle of the heart, and thence distributed to all parts of the body. It is divided into two grand trunks, distinguished by the epithets ascending and descending. See **ARTERY**.

APARINE, goose-grass, or cleavers, in botany, a plant with a slender fibrous root; and slender, quadrangular, geniculated, rough, climbing stalks, five or six feet long. It is met with almost every where in hedges. It is inciding and aperient, and not only promotes urine, but sweat; two ounces of the juice have been found to be very serviceable in the dropsy, carrying off the water by urine.

APARTMENT, a portion, or part of a house, containing the necessary conveniences for a person to reside in it.

APATHY, among the ancient philosophers, implied an utter privation of passion, and an insensibility of pain. The Stoics affected an entire apathy; they considered it as the highest wisdom to enjoy a perfect calmness or tranquility of mind, incapable of being ruffled either by pleasure or pain. The primitive Christians used the word to express a contempt of the things of this world.

APE, in natural history, an animal of the monkey kind. It is hairy all over the body, somewhat resembling a man in the face, nostrils, ears, and teeth. It has also eye-lashes, on both the eye-lids; whereas other quadrupeds have none except on the upper. On the breast it has paps, and the arms are like those of a man, but hairy, and he bends them as well as the feet, like a human creature. Besides, it has hands, fingers, and nails, like those of a man, but more rough and unpolished. The feet are like larger hands, and are divided into fingers, or toes, of which the middle finger is the longest.

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An ape, properly so called, is without a tail; and those that have tails go under the name of monkeys, of which there are several kinds. See *MONKEY*.

APEEK, in navigation, the anchor is said to be apeek when so much of its cable is drawn or heaved into the ship, as to bring her stem perpendicular to it.

APERIENS Palpebram rectus, in anatomy, a muscle in the eye-lid.

APERIENTS, in the materia medica, medicines that facilitate the circulation of the juices in their containing vessels, by removing all obstructions. See *DEOBSTRUENTS*.

APERTURE, the opening of any thing, or a hole, cleft, or vacant place in some continuous subject.

APERTURE, or *APERITION*, in architecture, some opening, as a door, window, chimney, &c. There should be as few apertures as possible; it being a maxim that every aperture or opening has a tendency to weaken the building.

APERTURE, in optics, the hole next the object glass of a telescope, or microscope, through which the light and image of the object come into the tube, and are thence carried to the eye; it consists of a turned bit of wood, or plate of tin, with a round hole of a convenient diameter in the middle thereof.

APERTURE is also understood of that part of the object glass itself, which covers the former, and which is left pervious to the rays. See *TELESCOPE*.

M. Auzout affirms, that he found that the apertures of telescopes ought to be nearly in the subduplicate ratio of their lengths: but Huygens, who first introduced the use of apertures, assures us, he found, by experience, that the aperture of an object glass, ex. gr. of 30 feet, is to be determined by this proportion, as 30 to 3; that is, As 10 to 1, so is the square root of the distance of the focus of any glass, multiplied by 30, to its aperture; and the focal distances of the eye-glasses are to be proportional to the apertures.

The greater or less aperture of an object glass, it is to be noted, does not increase or diminish the visible area of the object; all that is effected by this is, the admittance of more or fewer rays, and consequently the more bright or obscure appearance of the object.

Hence, in viewing Venus through a telescope, a much less aperture is to be used than for the Moon, Jupiter, or Saturn; because her light is so vivid and glaring: which consideration does a little

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invalidate M. Auzout's proportion, as is shewn by Dr. Hook. *Philos. Transf.* No. 4.

APETALOSE, or *APETALOUS*, among botanists, an appellation given to such plants as have no petals or flower leaves.

APEA, the vertex or summit of any thing. See *VERTEX*.

APHÆRESIS, in grammar, a figure by which a letter or syllable is cut off from the beginning of a word.

APHELION, or *APHELIUM*, in astronomy, that point of the earth's or a planet's orbit, in which it is the farthest distant from the sun that it can be. The aphelia of all the primary planets are not at rest; for those of the planets nearest the sun, viz. Mercury, Venus, the Earth, and Mars, being acted upon by Jupiter and Saturn, move a small matter in consequentia, or according to the order of the signs; and that in the sesquiquiplicate ratio, or the square roots of the cubes of the distances of those planets from the sun. Hence, if the aphelion of Mars move 35 minutes in consequentia, or according to the order of the signs, in 100 years, the aphelia of the Earth, Venus, and Mercury, will move, in 100 years, 18', 36", 11', 27", and 4', 29".

The method of finding the place of the aphelion is by observing several of the greater digressions of the planet from the sun, till by two or three repeated observations it be found to remain at a stand.—In the *Philos. Transf.* No. 128, we have a geometrical method of finding the aphelia of the planets, given by Dr. Halley.

Kepler places the aphelion of Saturn, for the year 1700, in 28°, 3', 44", of Sagittarius: de la Hire, in 29°, 14', 41". The aphelion of Jupiter in 8°, 10', 40", of Libra: de la Hire, in 10°, 17', 14". The aphelion of Mars 0°, 51', 29", of Virgo: de la Hire, in 0°, 35', 25". The aphelion of the earth in 8°, 25', 30". of Cancer. The aphelion of Venus in 3°, 24', 27", of Aquarius: de la Hire, in 6°, 56', 10". And the Aphelion of Mercury in 15°, 44', 29", of Sagittarius: de la Hire, in 13°, 3', 40".

The annual motion, according to Kepler, of the aphelion of Saturn, is 1', 10", of Jupiter, 47", of Mars, 1', 7", of Venus, 1', 18", and of Mercury, 1', 45". According to De la Hire, that of Saturn is 1', 22", of Jupiter, 1', 34", of Mars, 1', 7", of Venus, 1', 26", and of Mercury, 1', 39".

APHORISM, a maxim or principle of some science; or a sentence comprehending, in a few words, a great deal of matter.

APHRO-

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APHRODISIA, in antiquity, festivals in honour of the goddess Venus. There were several of these Aphrodisia observed in divers parts of Greece; the most remarkable was that at Cyprus, first instituted by Cinyras, out of whose family certain priests of Venus were elected; At this solemnity several mysterious rites were practised: all who were initiated to them offered a piece of money to Venus as an harlot, and received, as a token of the goddess's favour, a measure of salt, and a *phallus*; the former because salt is a concretion of water, to which Venus was thought to owe her birth; the latter, because she was the goddess of wantonness.

APHRODITES, in natural history, a name given by some authors to the finest species of amethyst.

APHTHÆ, in medicine, small round superficial ulcers arising in the mouth. Mel rosatum, or honey of roses, acidulated with spirit of vitriol, is a good medicine in the cure of the aphtæ.

APIARY, a bee-house, or place where bees are kept, and properly furnished with all the apparatus necessary for that purpose.

The word is formed from the Latin, *apis*, a bee.

Methods of making an APIARY.—

When there are but few bees, it is usual to set them in any corner of the garden, or court, and sometimes in closets adjoining to the house; though some, for want of room without doors, have set them in lofts or upper rooms; but this is not so proper for them. If a person intends to have a considerable store of bees, a plat must be made by itself, proportioned to the number of bees intended to be kept, not quite a square, being rather longer, extended from east to west, but so contrived that they may have as much of the morning and evening sun as possible. The apiary should be securely defended from high winds on either side, either naturally by hills, trees, &c. or artificially by houses, barns, walls, &c. It is also to be well fenced from cattle, especially hogs, and from all sorts of fowl, their dung being very prejudicial to them; neither should there be any ill smells, nor any poultry kept near the place. The apiary should be furnished with stools or benches, of wood or stone; but the first is best, stone being hot in summer, and cold in winter: these are placed at different heights, but about twelve inches is a good height; they should be set a little shelving, that the rain may run off; they should also be two or three inches wider

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than the hives set upon them, and at least five feet distant from the other. To have a complete apiary, for every stock of bees intended to be kept, make a cot or house about two feet square, and two and a half high, set on four legs about ten inches above the ground, covered over with boards or tiles to keep off the rain, the back or north side being closed up; and the sides, facing the east and west, to have doors with latches and hasps to them; the fore or south side to have a falling door to cover one half thereof, which is to be raised up at pleasure; and in summer time serves for a pent-house, not only to keep off the beating rains from the hives, but to defend them from the extreme heat of the sun, which at noon-day is apt to melt the honey. The other lower half should have two small doors to open to either hand, which will serve to defend the doors or holes of the hives from injurious winds: all the doors may be fastened in winter, when the weather is too cold; or in summer, when it is too hot for the bees, only making a little open square at the bottom of the little doors against the bee hole, that the bees may have some liberty to fly abroad, after the doors have been shut: by means of the side doors, especially if the west door be made to open to the right hand, a person may sit safe, and see the several workings of the bees in glass hives, if any such are used; if not at these places he may order, view, and observe them better than when they stand on naked stools, and with less offence to the bees, and more security to himself. In the winter season, if the apiary stand cool, good sweet straw may be stuffed within the doors about the hives, to keep them warm; but extremity of cold does not hurt bees so much in winter as wet, from which these cases best preserve them; or as light, and the warm beams of the sun, at such time when there is no provision abroad for them, against which this house or cot is the best preservative; for, when the doors are shut, though the sun shines, yet they are insensible of it, the hives standing six or eight inches within the doors; whereas, after the common way of benches or stools, the sun casts rays to their very doors, which warmth, and light together, draw them out, at the expence of their provisions and lives together, as is evident from frequent experience, the mildest and clearest winters starving and destroying most bees; when, on the contrary, the coldest and most frozen best secure them. See *BEES*.

APICES,

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APICES, in botany, little knobs growing on the tops of the stamina, or cives in the middle of flowers.

APIOS, the knobbed-rooted Virginian liquorice vetch, in botany, a genus of plants, of wheat. There is, at present, but one species known to us, which is, *apios Americana Cornuti*; the American *apios* of Cornuti.

APIS, in mythology, a deity among the Egyptians, represented by an ox, with certain external marks. Into this animal, according to the Egyptians, the soul of the Great Osiris retired, and withdrew itself from the world. He gave this creature the preference, because the ox is the symbol of agriculture, the perfection of which this prince had very much at heart. The ox, *apis*, must have a star in the forehead; that is, a square white mark, the figure of an eagle on his back, a knot under his tongue in the form of a beetle, the hair of his tail double, and a crescent on his right flank; and the cow that bore him must have been conceived by a clap of thunder. As it is difficult to apprehend nature should produce an animal with all these marks, requisite for an *apis*, we must suppose that the priests took care, by impressing the necessary marks on young calves, to be provided always with one.

APIUM, in botany, an herb called in English parsley. See **PARSLEY**.

APIUM Palustre, smallage. See the article **SMALLAGE**.

APOCALYPSE, revelation, the last of the sacred books of the New Testament, containing revelations concerning several important doctrines of Christianity.

This book, according to Irenæus, was written about the year 96 of Christ, in the island of Patmos, whither St. John had been banished by the emperor Domitian. But Sir Isaac Newton, with very good reason, places the writing this book earlier, viz. in the time of Nero. Some attribute this book to the arch-heretic Cerinthus: but the ancients unanimously ascribed it to John, the son of Zebedee, and brother of James. This book has not, at all times, been esteemed canonical. There were many churches in Greece, as St. Jerom informs us, which did not receive it; neither is it in the catalogue of canonical books prepared by the council of Laodicea, nor in that of St. Cyril of Jerusalem; but Justin, Irenæus, Origin, Cyprian, Clemens of Alexandria, Tertullian, and all the fathers of the fourth, fifth,

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and the following centuries, quote the Revelations as a book then acknowledged to be canonical. The Alogians, Marcionites, Cerdonians, and Luther himself, rejected this book: but the Protestants have forsaken Luther in this particular; and Beza has strongly maintained against his objections, that the Apocalypse is authentic and canonical. The apocalypse of John is written in the same stile and language with the prophecies of Daniel, and hath the same relation to them which they have to one another; so that all of them together make but one consistent prophecy, pointing out the various revolutions that should happen, both to the church and to the state; and, at length, the final destruction and downfall of the Roman empire. *Newton on Prophecies.*

APOCOPE, among grammarians, a figure which cuts off a letter or syllable from the end of a word; as *ingeni* for *ingenii*.

APOCRYPHA, or **APOCRYPHAL Books**, such as are not admitted into the canon of Scripture, being either not acknowledged as divine, or spurious. When the Jews published their sacred books, they only gave the appellations of canonical and divine to such as they then made public; and such as were still retained in their archives they called apocryphal, for no other reason, but because they were not public; so that they might be really sacred and divine, though not promulged as such.

The protestants do not only reckon those books to be apocryphal which are esteemed such in the church of Rome, as the prayer of Manasseh king of Judah, the third and fourth book of Esdras, St. Barnabas's epistle, the book of Hermas, the addition at the end of Job, and the 151st Psalm; but also Tobit, Judith, Esther, the book of Wisdom, Jesus the Son of Sirach, Baruch the prophet, the Song of the Three Children, the history of Susanna, the history of Bell and the Dragon, and the first and second book of Maccabees. It is not pretended that these books were received by the Jews, or so much as known to them. None of the writers of the New Testament cite or mention them: neither Philo nor Josephus speak of them. The Christian church was for some ages an utter stranger to these books. Origin, Athanasius, Hilary, Cyril of Jerusalem, and all the orthodox writers, who have given catalogues of the canonical books of Scripture, unanimously concur in rejecting these out of the canon.

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canon. And for the New Testament they are divided in their opinions, whether the Epistle to the Hebrews, the Epistle of St. James, and the second Epistle of St. Peter, the second and third Epistles of St. John, the Epistle of St. Jude, and the Revelations, are to be acknowledged as canonical or not. The protestants acknowledge such books of Scripture only to be canonical as were so esteemed to be in the first ages of the church. The several epistles abovementioned, and the book of Revelations, whatever the sentiments of some particular persons are or may have been of them, are allowed by all the reformed churches to be parts of the canon of the New Testament.

APOCYNUM, dogs-bane, in botany, a genus of plants, the leaves of which are produced opposite by pairs upon the branches: the flower consists of one leaf, which is cut into several segments; from its flower-cup arises the pointal, which is fixed like a nail in the back part of the flower, and is afterwards changed into a fruit, which is, for the most part, composed of two capsules, or pods, which open from the base to the top, inclosing many seeds, and have a long pappous down adhering to them: to this may be added, that the whole plant abounds with a milky juice. There are several sorts of this plant cultivated in the curious gardens of plants, some of which are very beautiful, and deserve a place in every good garden. *Miller's Dict.*

APODETYRIUM, in the ancient baths, the apartment where persons, dressed and undressed.

APOGEE, *Apogæum*, in astronomy, that point in the orbit of a planet, which is at the greatest distance from the earth. The apogee of the sun is that point of the earth's orbit which is at the greatest distance from the sun; and consequently the sun's apogee, and the earth's aphelion, are one and the same point. The quantity of the motion of the apogee may be found by comparing two observations thereof made at a great distance of time, converting the difference into minutes, and dividing it by the number of years elapsed between the two observations. The quotient gives the annual motion of the apogee. Thus, from an observation made by Hipparchus, in the year before Christ, 140, whereby the sun's apogee was found 5° , $30'$, of Gemini; and another made by Ricciolus, in the year of Christ, 1646, wherein it was found 7° , $26'$, of Cancer: the annual motion of the apogee is found

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to be 1° , $4''$. De la Hire, in Tab. Astron. p. 15, makes the apogee of the sun to be in 8° , $7'$, $30''$, of 20, and its annual motion $1'$, $2''$.

APOGEE of the Equant is its farthest distance from the earth; or that point where the circumference of the the equant is intersected by the line of the apsidæ, in the remotest part of the diameter.

The mean apogee of the epicycle is a point where the epicycle is cut above, by a right line drawn from its center, to the center of the equant, or the point of the epicycle most remote from the earth.

* **APOLLO**, in heathen mythology, the God of Light, Medicine, Verse, and Prophecy. According to Tully there were four deities of this name; the first was the son of Vulcan, and the tutelar God of the Athenians; the second born in Crete; the third an Arcadian; and the last, to whom the greatest honour is ascribed, the son of Jupiter and Latona. This deity was so skilled in the use of the bow, that his arrows were always fatal. Python and the Cyclops experienced their force; for Apollo being enraged at Jupiter's killing his son Æsculapius, revenged himself on the Cyclops who had forged the thunderbolts for the father of the Gods, on which he was banished from heaven, and forced to hire himself as a shepherd to Admetus, king of Thessaly, when he invented the lyre, and became distinguished for his skill in music, on which account the Muses were under his immediate protection, and the grasshopper was consecrated to him on account of its harmony. In the character of the sun he was represented in a chariot, drawn by four horses; each night he went to repose with Thetis in the Ocean, and in the morning the Hours got ready his horses, and unbarred the gates of light. He resembled his father Jupiter in his propensity to love, and spent some time with Venus in the Isle of Rhodes, when the sky rained gold, and the earth was covered with lilies and roses.

He had a great number of names; he was called Phœbus, on account of his splendor; Præon, from his killing the python; Nomius and Agræus, from his feeding of cattle, and making laws; and Delius, either from his revealing things concealed, or his being born at Delos; and at Rome he was called Sol or the Sun. The sacrifices usually offered to Apollo were lambs, bulls, and oxen. The animals sacred to this God were the wolf, from its acuteness of sight; the cock, from

from his foretelling his rising; the hawk, from its boldness of flight; the crow, from her augury; the swan, from her divining her own death; and the grasshopper, on account of its music. Of trees, the olive, laurel, palm, and juniper, were most in esteem with him.

APOLOGUE, an ingenious method of conveying instruction, by a feigned relation, called a moral fable. The only difference between a parable and an apologue, consists in this, that the former being drawn from what passes among mankind, requires probability in the narration; whereas the apologue being generally taken from the supposed actions of brutes, or even things inanimate, is not confined by such strict rules of probability.

APOLOGY, a defence or excuse for some person, action, or the like, either by words or writing.

APONEUROSIS, in anatomy, the spreading or expansion of a nerve or tendon, in the manner of a membrane.

APOPHYGE, in architecture, the convex part, or ring, of a column, lying either above or below the flat member. It was originally nothing more than the ferril or ring, fixed on the extremity of a wooden pillar to prevent its splitting; and was afterwards imitated in stone.

APOPLECTIC, something that relates, or belongs to, an apoplexy.

APOPLEXY, among physicians, any disorder which instantaneously deprives a man of life, who a few minutes before was, or at least seemed to be, in perfect health; but it is usually confined to such sudden disorders caused by affections of the brain. The word is derived from the Greek, to strike suddenly.

In an apoplexy says Boerhave, the patient is suddenly deprived of the exercise of all the senses, both external and internal, and of voluntary motion, whilst the pulse, which is generally strong, remains, together with a laborious and deep respiration, attended with a considerable elevation of the breast, with a stertor, and the appearance of profound and perpetual sleep. A multitude of the most accurate observations have made it appear, that this disorder arises from whatever cause is capable of preventing, either totally or in part, the influx of the nervous fluid, secreted, in the cerebrum, to the organs of sense and voluntary motion, and the reflux of the same fluid from the above-mentioned organs to the common sensory in the brain; whilst the progress, and perhaps the return, of the fluid, supplied by

the cerebellum, to and from the heart, and organs of respiration, is preserved in a degree sufficient to support, in some measure, their functions.

All these causes, as observed and delivered by authors, may, for the greater perspicuity, be reduced to classes; in the first of which may be reckoned,

1. The natural make of the body: thus, when the head is naturally large, the neck short, and, as it sometimes happens, consisting only of six vertebrae, whereas there ought to be seven, this structure disposes to an apoplexy, as it favours the congestion of blood and humours in the head. Thus also, if the body is corpulent and fat, the capillary arteries in general will be subject to compression; and, in consequence thereof, a greater quantity of blood and humours will flow into the vessels which convey them to the brain. Thus also a plethoric habit, and a redundancy of pituitous humours in the blood, lay a foundation for the stagnation of the juices, and a subsequent rupture of the vessels in the brain.

2. To the second class belong all those causes which induce such a change in the blood, lymph, and nervous fluid, as to render them incapable of circulating freely through their respective vessels in the brain. Amongst these are,

Polypous concretions in the carotid or vertebral arteries, whether formed originally about the heart, or within the cranium; which are discovered by a palpitation of the heart, an unequal pulse, a vertigo, and temporary loss of sight, often recurring, and which are increased by motion or heat.

3. To the third class belongs whatever compresses the arteries themselves, or the nervous vessels of the brain, so as to prevent a free circulation of their respective fluids through them.

People who are plethoric, that is, full of blood, and bloated with bad humours, are much subject to this species of apoplexy; especially if extraordinary motion or heat increase the velocity of the circulation. Hence it is apparent that the disorder must be promoted in such constitutions by high feeding and spirituous liquor; medicines which are acrid, and excite the motion of the blood, such as cardiacs, volatiles, and emetics; by excessive heat and motion; and by intenseness of thought, especially if long continued, and frequently repeated, because this determines a more copious flux of humours towards the brain.

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4. To the fourth class belongs all those causes, which, by any means, so dissolve the texture of the arteries, veins, or lymphatic ducts, belonging to the internal part of the cerebrum, as to cause an extravasation of their respective fluids, which then press upon, and injure the medullary origin of the nerves of the cerebrum. Such, for example, are an acrimonious serum in hydropic and leucophlegmatic cases; a redundancy of blood in a plethora; an atrabiliarious acrimony prevalent in melancholy, scorbutic, and arthritic constitutions, which frequently produces an apoplexy, and usually operates betwixt the fortieth and sixtieth years of life. Now, all these may remain latent in the constitution for some time; but, upon being excited by adequate causes, they are frequently productive of a sudden apoplexy; which may be foreseen by comparing the materials subsisting in the constitution with the causes capable of exciting them to action, which are principally violent affections of the mind, and intense studies: to which, perhaps, imprudent and excessive venery may be added.

5. Some sorts of poisons, which are suddenly deleterious, may be ranked in the fifth class; but these may be either reduced to the second, third, or fourth; or may be more properly said to act upon the lungs than the brain. Amongst these are the fumes or mineral sulphurs, of charcoal, and that gas *symplicis*, or incoercible spirit, which exhales from vegetable juices during fermentation.

The anatomical inspection of bodies which have died of apoplexies, and the historical observation of such circumstances as occur in the treatment of such cases, furnish us with a knowledge of these causes; and a due reflection upon these naturally leads us to a distribution of them into the preceding classes, which are admirably adapted to the investigation of the best methods of cure.

As to the cure and prevention of an apoplexy, no universal rules can be laid down; for as the predisposing and exciting causes, together with the parts principally affected, are various, the method of relief must also vary; and must be attempted before the disorder grows inveterate, otherwise it will be difficult to do it with success.

If, therefore, an apoplexy, from a glutinous, inert cold cause, is foreseen from the signs above specified, the intentions must be directed, first, to avert the pressure of the glutinous juices from the head.

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Secondly, to attenuate the glutinous viscosity in the brain, and in the whole habit.

The pressure on the vessels of the brain are to be diminished,

First, by a derivation of the humours to other, and these opposite parts.

Secondly, by universal evacuations.

A derivation of the humours is effected by vapours, fomentations, and baths, applied to particular parts, by which it is intended the humours should be invited, by suction with cupping-glasses, by sinapisms and vesicatories, among which cantharides are of great importance; as they both invite the humours to the part where they are applied, and attenuate at the same time, by caustics, issues, setons, and frictions; by ligatures made upon the large veins of the feet, legs, and thighs. To these may be added collutions, gargarisms, and masticatories, which excite a discharge of saliva, and apophlegmatisms applied to the mouth, fauces, and nose.

Boerhaave.

APOSTACY, the act of abandoning the true religion.

APOSTHUME, in surgery. See **ABSCESS**.

APOSTLE, a messenger sent on a business of importance; and hence the word is applied by way of eminence to imply one of the twelve disciples commissioned by Christ to preach the gospel. There are various conjectures with regard to the reason which induced our Saviour to make choice of twelve apostles; but the most probable is, that he did it in allusion to the twelve patriarchs, as the founders of their several tribes; or to the twelve chief heads or rulers of those tribes, of which the body of the Jewish nation consisted.

APOSTOLIC, or **APOSTOLICAL**, something connected with, or derived from the apostles.

APOSTROPHE, in rhetoric, a figure by which the orator, in a vehement commotion, turns himself on all sides, and applies himself to the living and the dead; to angels and to men; to inanimate objects, rocks, groves, streams, &c. Thus Adam, in Milton's *Paradise Lost*,

O woods, O fountains, hillocks, dales,
and bow'rs,

With other echo, &c.

APOSTROPHE, in grammar, a mark placed over a letter to shew that a vowel is cut off; as heav'n for heaven, &c.

APOTHECARY, one who practises the art of pharmacy. There are, in this

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profession,

profession, various degrees, as to employ and extent. Some do little more than make up medicines, according to the prescription of the Dispensatory (compiled by the order of the College of Physicians, for their direction) and of those of particular physicians, besides visiting their patients. Others not only prepare almost all kinds of medicines, as well galenical as chemical, but likewise deal in drugs, with all which they supply their brethren in trade; and so become a sort of wholesale dealers, as well as apothecaries. Others again, practise surgery, manmidwifery, and many times even officiate as physicians, especially in the country; and often become men of very large practice, and eminent in their way. A youth intended for this profession should be a pretty good scholar, and have a tolerable knowledge in the Latin tongue at least, that he may be the better able, in due time, to read some of the best authors who have wrote upon the subjects of botany, pharmacy, anatomy, and medicine; though it must be owned there are, at present, almost innumerable helps in our mother-tongue.

In London, they are one of the city companies, and were first incorporated with the grocers in the 1606, in the reign of king James I. but not alone till 1617. They have a hall where there are two fine laboratories, out of which all the surgeons chests are supplied with medicines for the use of the British navy.

In the year 1712, the 10th of queen Anne, an act passed for reviving and continuing several acts therein mentioned, one whereof was for exempting the apothecaries from serving the offices of constables and scavengers, and other parish and ward offices, and from serving upon juries; which act was made perpetual in the 9th year of king George the 1st. The apothecaries in England are obliged to make up their medicines according to the formulas prescribed in the Dispensatory of the College of Physicians, and are under an obligation to have medicines there enumerated always ready in their shops; and their shops are liable to be visited by the censors of the college, who have it in their power to destroy such medicines as they judge not to be good.

By a regulation of the 15th of October, 1631, all the apothecaries of Paris are prohibited to give any medicine to the patients, unless by the order, and with the advice of a regular bred physician, or of a person of the faculty; nor are they to make up any prescription, given or drawn up by any empiric.

Among the good regulations made in Denmark, that which the apothecaries are obliged to observe is reckoned one of the best; for no person can have leave to follow that profession, unless he be approved of by the college of physicians, and confirmed by the king himself. There are but two apothecaries allowed for the city of Copenhagen, and but one in every other considerable town. The magistrates, attended by the doctors of physic, visit their shops and drugs twice or thrice a year, and those drugs that are either stale or bad are seized, and publickly thrown upon a dung-hill without the city; and this is a stain upon the character of such apothecary, that is hardly ever wiped off. The price of all drugs is fixed, so that one may, without fear of being imposed upon, send child for any drug to an apotheca even a ry's shop, where nothing is sold but what is very good, and at a reasonable price. All drugs are sold for ready money, and yet the apothecaries are obliged to register in a book what they sell, to whom, and by what physician's prescription: so that there seldom happens any accident by poison, either accidentally, or with design; and if any such thing happens, it is easily found out, and quickly punished.

It is looked upon as a disgrace to England, that such numbers of quacks, or empirics, should be permitted to enrich themselves by destroying annually many thousands of his Majesty's subjects; and it is still more disgraceful that many of these wretches who murder with impunity, have obtained the king's royal patent for an exclusive privilege of destroying the human species. It is with concern I say it, but there are many in London, authorized by patent to sell their nostrums, who have been bred porters, or to the most servile trades and employments; but if they can scrape together the sum of seventy pounds to pay the fees of office, a patent is granted of course; by the help of which, and a pompous advertisement, which the patentee himself cannot understand, their poison is distributed over his Majesty's three kingdoms. Is it not amazing that the legislature does not take this matter into consideration?

APOTHEOSIS, in antiquity, a heathen ceremony, whereby their emperors and great men were placed among the gods. It was one of the doctrines of Pythagoras, which he had borrowed from the Chaldees, that virtuous persons, after their death, were raised into the order of the gods. And hence the ancients deified all the inventors of things useful to mankind, and who had
done

done any important service to the commonwealth. Tiberius proposed to the Roman senate the apotheosis of Jesus Christ, as is related by Eusebius, Tertullian, and St. Chrysostom. Juvenal rallying the frequent apotheosis, introduces poor Atlas complaining that he was ready to sink under the prodigious burthen of so many new gods as were almost every day added to the heavens.

APOTOME, in mathematics, the remainder or difference of two incommensurable quantities. The word is derived from the Greek.

The doctrine of apotomes is a very useful subject; it serves to shew the possibility or impossibility of the quadratures of curved-line figures, and illustrates the lineal solutions of Diophantus's problems, and others of the like kind. Euclid, in his Elements, makes use of this method to shew the nature of the five regular bodies, which by Plato and his sect (of which Euclid's was one) were held in great esteem.

APPARATUS, a term used to signify a complete set of instruments, or other utensils, belonging to any artist or machine: thus we say a surgeon's apparatus, a chemist's apparatus: the apparatus of the air-pump, microscope, &c.

APPARENT, in a general sense, whatever is evident to the eye or understanding.

APPARENT Conjunction, in astronomy, is, when the right line connecting the centers of two planets, &c. does not pass through the center of the earth, but through the eye of a spectator situated on its surface.

APPARENT, or *sensible Horizon*, is that great circle which limits our sight, or the place where the heavens and the earth seem to meet.

APPARENT Magnitude of an object, the magnitude thereof, as it appears to the eye. The apparent or seeming magnitude is measured by the optic angle. All things appear the less, the more remote they are; and it is found by experience, when their distance becomes so great that the apparent magnitude is no more than an angle of one second, they will be so small as to appear but like a point, and become invisible.

APPARENT Diameter, in astronomy, is the angle under which we see the sun, moon and stars.

The best way of finding the apparent diameters of the celestial luminaries is by a micrometer fixed in the focus of a telescope.

The apparent diameter of the sun may be obtained by taking the meridian altitudes of his upper and lower limbs with a good quadrant and telescope fitted to it, and afterwards taking their difference, which will be his apparent diameter seen from the earth. The apparent diameter of the sun is observed to be least when he is in Cancer, and greatest when in Capricorn. In the moon there is a two-fold increase and decrease of the apparent diameter, one when she is in conjunction with the sun, and the other when in her quadratures.

The greatest apparent diameter of the sun, according to Cassini, is $32', 10''$, and the least $31', 38''$ —According to De la Hire, the greatest is $32', 43''$, and the least $31', 38''$ —The greatest apparent diameter of the moon, according to Kepler, is $32', 44''$, and the least $30', 00''$. And according to De la Hire, the one is $33', 30''$, and the other $29', 30''$. See the articles **SUN** and **MOON**.

The apparent diameter of Saturn's ring, according to Huygens, is $1', 8''$, when least.

The apparent diameters of the other planets see under the article **DIAMETER**.

APPARENT Distance, that distance we judge an object to be from us when seen afar off, being generally very different from the true distance.

APPARENT Place of any Object, in optics, that wherein it appears when seen through one or more glasses. See **LENS**.

APPARENT Place of the Image of an Object, in catoptrics, that which the image of an object, made by the reflection of a speculum, appears to be in.

APPARENT Place of a Planet, in astronomy, that point upon the surface of the sphere where we see the center of the sun, moon, or stars, from the surface of the earth.

APPARITION, in a general sense, implies simply the appearance of any object.

APPARITION, in astronomy, signifies a star, or other heavenly object becoming visible, which before was below the horizon.

Circle of perpetual APPARITION, in astronomy, a great circle of the sphere, whose plane is perpendicular to a right line drawn from the center of the sun to that of the earth; this circle is the boundary of the enlightened hemisphere of the earth, in the different points of its orbit.

Circle of perpetual APPARITION, in geography, a small circle of the sphere described about the pole as a center, and touching the northern point of the horizon.

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in north latitude, and the south point in south latitude. All stars included in this circle never set, but are always visible above the horizon.

APPARITOR, among the Romans, a general term to comprehend all attendants of judges and magistrates appointed to receive and execute their orders. Apparitor, with us, is a messenger that serves the process of a spiritual court, or a beadle in an university, who carries the mace.

APPEAL, in law, the removal of a cause from an inferior to a superior court or judge, when a person thinks himself aggrieved by the sentence of the inferior judge. Appeals lie from all the ordinary courts of justice to the house of lords.

APPEAL, in common law, is taken for the accusation of a murderer by a person who had interest in the party killed, or of a felon by an accomplice. It is prosecuted either by writ or by bill: by writ, when a writ is purchased out of the chancery by one person against another, commanding him to appeal to some third person of felony, and to find pledges for doing it effectually; by bill, when the person himself gives in his accusation in writing, offering to undergo the burden of appealing the person therein named.

APPEARANCE in a general sense, the exterior surface of a thing, what immediately strikes the senses.

APPEARANCE, in law, signifies a defendant's filing a common or special bill, or any process issued out of a court of judicature. In actions by original, appearances are entered with the filazer of the country; and by bill, with the prothonotary.

In perspective, appearance is the projection of a figure or body on the perspective plane. In optics, direct appearance is the sight of any object by direct rays, without refraction or reflection.

APPELLANT, in a general sense, one who appeals. See the article **APPEAL**.

APPELLATIVE, in grammar, a noun which is applicable to a whole species or kind, as man, horse, fish, in contradistinction to a proper noun. See **NOUN**.

APPELLEE, among lawyers, the person against whom an appeal is brought. See **APPEAL**.

APPENDANT, in law, any thing that is inheritable belonging to some more worthy inheritance, as an advowson, common, or court, may be appendant to a manor, land to an office, &c. but land cannot be appendant to land, for both are corporeal inheritances, and one thing corporeal cannot be appendant to another.

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APPENDIX, a treatise added at the end of a work to render it more complete. See **SUPPLEMENT**.

* **APPENINES**, a large chain of mountains, commonly considered as a branch of the Alps. It runs along Italy throughout its whole length, even as far as the most southern part of Naples.

APPETITE, *Appetitus*, in a general sense, the desire of enjoying some object, supposed to be conducive to our happiness.

APPETITE, in medicine, a certain painful or uneasy sensation, always accompanied with a desire to eat or drink. An excessive appetite is called by physicians bulimy, or fames canina; a defect or loss of it, anorexy; and that after things improper for food, pica. See **BULIMY**, **ANOREXY**, &c.

APPLE, a well known fruit, of a roundish figure, of considerable use both as a food, a remedy, and likewise yielding cyder.

All sorts of apples, says Mr. Miller, are propagated by grafting or budding upon the stocks of the same kind; for they will not take upon any other sort of fruit-tree. In the nurseries there are three sorts of stocks generally used to graft apples upon: the first are called free stocks; these are raised from the kernels of all sorts of apples indifferently; and these are also termed crab-stocks; for all those trees which are produced from the seeds before they are grafted, are termed crabs without any distinction: but, as I before observed, I should always prefer such stocks as are raised from the kernels of crabs, where they are pressed from verjuice; and I find several of the old writers on this subject of the same mind. Mr. Austin, who wrote an hundred years ago, says the stock which he accounts best for apple grafts, is the crab; which is better than sweeter apples, and will make fruits more strong and hardy to endure frosts; and it is very certain, that, by frequently grafting some sorts of apples upon free stocks, the fruits have been rendered less firm and poignant, and of a shorter duration.

The second sort of stock is the Dutch creeper: these are designed to stint the growth of the trees, and keep them within compass for dwarfs or espaliers.

The third sort is the paradise apple, which is a very low shrub, so only proper for trees which are kept in pots by way of curiosity; for these do not continue long.

Some persons have made use of codlin-stocks for grafting of apples, in order to stint their growth: but as these are commonly propagated by suckers, I would by

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no means advise the use of them; nor would I choose to raise the codlin-trees from suckers, but rather graft them upon crab-stocks; which will cause the fruit to be finer, last longer, and have a sharper flavour: and these trees will last much longer sound, and never put out suckers, as the codlins always do; which, if not constantly taken off, will weaken the trees, and cause them to canker; and it is not only from the root, but from the knots of their stems there are generally great number of strong shoots produced, which fill the tree with useless shoots, and render them unsightly, and the fruit small and crumpled.

The method of raising stocks from the kernels of crabs or apples is, to procure them where they are pressed for verjuice or cyder; and after they are cleared of the pulp, they may be sown upon a bed of light earth, covering them over about half an inch thick with the same light earth: these may be sown in November or December, where the ground is dry; but in wet ground, it will be better to defer it till February; but then the seeds should be preserved in dry sand, and kept out of the reach of vermin; for if mice or rats can get to them, they will devour the seeds: there should also be care taken of the seeds when they are sown, to protect them from these vermin, by setting of traps to take them, &c. In the spring, when the plants begin to appear, they must be carefully weeded; and if the season should prove dry, it will be of great service to water them two or three times a week; and, during the summer, they must be constantly kept clear from weeds; which, if suffered to grow, will soon over-top the plants, and spoil their growth: if these thrive well, they will be fit to transplant into the nursery the October following; at which time the ground should be carefully digged, and cleansed from the roots of all bad weeds: then the stocks should be planted in rows three feet asunder, and the plants one foot distance in the rows, closing the earth pretty fast to their roots: when the stocks are transplanted out of the seed-bed, the first autumn after sowing, they need not be headed: but, where they are inclined to shoot downward, the top-root must be shortened, in order to force out horizontal roots. If the ground is pretty good in which the stocks are planted, and the weeds constantly cleared away, the stocks will make great progress; so that those which are intended for dwarfs, may be grafted the spring twelvemonth after they are planted out of the seed-beds:

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but those which are designed for standards will require two years more growth, before they will be fit to graft; by which time they will be upwards of six feet high. The other necessary work to be observed in the culture of these trees, while they remain in the nursery, will be enumerated under that article. See NURSERY. *Mills's Gard. Dict.*

APPLICATION, in a general sense, the laying two things together, in order to discover their agreement.

APPLICATION of one Science to another, signifies the use we make of applying the principles and truths belonging to one science, to complete or advance another.

APPLICATION of Algebra to Geometry, implies the solving geometrical problems by the assistance of algebra.

As the line, the surface, and the solid, objects of geometry are commensurable magnitudes, it is very natural to think that, as algebra and analysis were wholly employed in the calculation of magnitude, and discovering unknown quantities from proper data, they might be applied with very great advantage to geometry. But however natural and easy this application may appear, Des Cartes was the first that ever knew it, though algebra had been very greatly improved by several persons, especially Vieta. Des Cartes first taught us to express the nature of curves by equations, to resolve geometrical problems by these curves, and, in short, to demonstrate theorems in geometry by the help of algebraical calculation, when it would be too laborious to demonstrate them by the common methods. See the articles CURVE and CONSTRUCTION of EQUATION.

APPLICATION of Geometry to Algebra.—The application of geometry to algebra is not so common as the application of algebra to geometry, but sometimes takes place: for as we represent geometrical lines by equation, so we may represent numerical quantities, expressed by algebraical symbols, by geometrical lines; and by this means sometimes discover a more easy method of demonstration and solution.

APPLICATION of Geometry and Algebra to Mechanics.—This is founded on the same principles as the application of algebra to geometry. It consists chiefly in representing the curves which bodies describe in their motion by equations, in determining the equation between the spaces which bodies generate, (when acted upon by any powers whatever) and the time they take to pass through these spaces, &c. We cannot indeed compare two things of a different

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rent nature together, such as space and time; but we may compare the proportion of time with the parts of space passed over. Time in its nature flows uniformly, and mechanics imply the same uniformity.

APPLICATION of Geometry and Algebra to Physics.—This we owe to Sir Isaac Newton, as we owe the application of algebra to geometry to Des Cartes, and it is founded on the same principles. The properties of bodies in general have between each other certain proportions, which we may compare with each other, more or less distinguishable; and these we can discover by geometry or algebra. On this are founded all the physico-mathematical sciences. One single observation or experiment often demonstrates a whole science. As for example: The bare knowledge of this, that the angle of incidence is equal to the angle of reflection, which is known to be true, contains the whole science of catoptrics. This principle of the equality of angles being once admitted, catoptrics becomes a science purely geometrical, because it is reduced to comparing angles with given lines of position. The thing is the same in many other cases. By the help of geometry and algebra, we can in general determine the power of one effect, which depends on another better known. This science, therefore, is almost always necessary to compare and examine the facts experiments discover to us. It must be owned, however, that every subject of physics is not equally capable of the application of geometry. Several experiments admit of no calculation at all; such are those of the magnet, electricity, and many others; in these cases we must forbear applying to it.

APPLICATION of one Thing to another is a term made use of to denote the service the first is of to understand or bring the second to perfection. Thus the application of the cycloid to pendulums signifies the use made of the cycloid to bring pendulums to perfection.

APPRAISING, the act of valuing or setting a price upon goods, &c.

APPREHENSION, in logic, the first or most simple act of the mind, whereby it perceives or is conscious of some idea. See the article PERCEPTION.

APPREHENSION, in law, the seizing a criminal in order to bring him to justice.

APPRENTICE, a young person bound by indenture to some tradesman, in order to be instructed in his mystery or trade.

APPROACH, the acceding or advancing of two objects towards each other.

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APPROACHES, in fortification, the works thrown up by besiegers, in order to get nearer a fortress without being exposed to the fire of the enemy's cannon; such in particular are the trenches carried on in a zigzag form, connected by parallels or lines of communication. See ATTACK.

APPROPRIATION, the annexing a benefice to the proper and perpetual use of a religious house, bishopric, college, &c.

APPROXIMATION, in arithmetic and algebra, the method of approaching still nearer to the quantity sought, without a possibility of finding it exactly.

For the several methods of approximation, see EXTRACTION, EQUATION, CIRCLE, SERIES, &c.

APPULSE, in astronomy, the approach of a planet towards a conjunction with the sun, or any of the fixed stars.

APPURTENANCES, in common law, things belonging to another thing as principal: as hamlets, fisheries, &c. to a manor; seats in a church; to houses, &c.

APRICOT-TREE, *Armeniaca Malus*, in gardening and botany, a fruit-bearing tree, with roundish acuminate leaves, serrated on the edges, and four or five of them placed together. There are, says Mr. Miller, seven sorts cultivated in the English gardens, which are: 1. The masculine apricot; that is the soonest ripe of all, and has a small roundish fruit, of a red colour towards the sun, which as it ripens fades to a greenish yellow on the other side. It is only valuable for being soonest ripe; for it has little flavour. 2. The orange apricot, which is the next that becomes ripe, and is of a deep yellow colour. The flesh is dry, and is better for tarts than for eating. 3. The Algier apricot ripens next, and is of an oval shape, only a little compressed on the sides. It turns to a pale yellow or straw colour, when the flesh is dry, with a faintish taste. 4. The Roman is next, and is larger than the Algier, but not compressed on the sides; the colour is deeper, and the flesh is moister. 5. The Turkey apricot is the next in order, because it ripens later than the former, and is bigger than any of them, and has a globular shape. It is of a deeper colour, has a firmer flesh and a better taste. 6. The Breda apricot was brought originally from Africa, and is a large roundish fruit, turning to a deep yellow when ripe, and is of a deep orange colour on the inside. The flesh is soft, full of juice, and better tasted than any of the whole tribe. 7. The Brussels apricot is the latest, and is not ripe till near the middle of August, unless exposed

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exposed to a south sun; however, too much heat spoils the taste. It is red on the side next the sun, with many dark spots, and of a greenish yellow on the other side; the flesh is firm, and of a high flavour, but it often cracks before it is ripe.

Most people train these trees up to stems of six or seven feet high, or breed them upon stocks of that height; but this is a bad practice, because the higher the heads of these trees are, the more they are exposed to the cutting winds in the spring, which too frequently destroy the blossoms; and the fruit is also more liable to be blown down in summer, especially if there should happen to be much wind at the time they are ripe; which by falling from a great height, will be bruised and spoiled. Half standards of about two feet and a half, or three feet in the stem, will better answer the intention; or they may be placed as dwarfs against an espalier, where, if they are skilfully managed, they will produce a large quantity of good fruit; and the trees in espalier may be more conveniently covered in spring, when the season proves bad; whereby there will be a certainty of fruit every year.

These fruits are all propagated by breeding them on plum-stocks, and will readily take upon almost any sort of plum, except the Brussels, provided the stock be free and thriving.

Most of these trees are planted against walls, and should have an east or west aspect; for if they are planted full south, the great heat renders them mealy before they are well eatable. The borders under these walls should be six feet wide at least, and the earth about two feet, or two feet and a half deep.

If your ground be a wet cold loam or clay, you should raise your borders as much above the level of the surface as it will admit, laying some stones or rubbish in the bottom, to preserve the roots from running downwards; but if you plant upon chalk or gravel, you must remove it to a considerable width, to make room for a good soil to be put in its place; though you need not go above two feet and a half deep at most.

The best soil for these and all other sort of fruit trees is fresh untried earth from a pasture ground, taken about ten inches deep with the turf, and laid to rot and mellow at least twelve months before it is used; and this must be kept often turned to sweeten and imbibe the nitrous particles of the air.

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When the former soil of the border is taken away, this fresh earth should supply its place; and if the borders are filled with it two months before the trees are planted, the ground will be better settled, and not so liable to sink after the trees are planted. In filling the borders, the ground should be raised four or five inches above the level they are designed to allow for the settling.

Your borders being thus prepared, make choice of such trees as are but one year's growth from budding; and if your soil be dry, or of a middling temper, you should prefer October as the best season for planting; but do not cut off any of the head at that time, unless there be any strong fore-right shoots which will not come to the wall, and must therefore be taken away.

Your trees being thus prepared, mark out the distances they are to stand, which, in a good strong soil, or against a low wall, should be twenty feet or more; but if the wall be moderately high, eighteen feet is a reasonable distance. Make a hole where each tree is to stand, and place the stem about four inches from the wall, inclining thereto: and after having fixed the tree in the ground, nail the branches to the wall, to prevent their shaking, and cover the surface of the ground round the roots with rotten dung to keep out the frost. In this state let it remain till February, when if the weather be good, you must unvail the branches of your trees, taking care not to disturb the roots; and and being provided with a sharp knife, put your foot close to the stem of the tree, and having placed your left-hand to the bottom of the tree, to prevent its being disturbed, with your right-hand cut off the head of the tree, to about four or five eyes above the bud, so that the sloping side may be towards the wall.

In the spring, if the weather proves dry, you must now, and then give your trees a gentle refreshing with water; in the doing of which, if you observe to water them with a rose to the watering-pot, all over their heads, it will greatly help them; and also lay some turf or other mulch about the roots, to prevent their drying during the summer season. As new branches are produced, observe to nail them to the wall in a horizontal position; and displace such shoots as grow in a fore-right direction. This must be repeated as often as necessary, to prevent their hanging from the wall; but by no means stop any of their shoots in summer.

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At Michaelmas, when the trees have done growing, you must unnaile the branches, and shorten them in proportion to their strength; a vigorous branch may be left eight or nine inches long, but a weak one not above five or six: by this means no part of the wall will be left uncovered with bearing wood, which must be the case if the branches are left to a great length at first; for it seldom happens that more buds than two or three shoot for branches; and these are, for the most part, such as are at the extreme part of the last year's wood: so that all the lower part of the shoots become naked, not will they ever after produce shoots; and this is the reason we see so many trees which have their bearing-wood situated only in the extreme part of tree.

When you have shortened the shoots, be sure to nail them as horizontally as possible; for upon this precaution the future good of the tree depends.

The second summer observe, as in the first, to displace all fore-right shoots as they are produced, nailing in the other close to the wall horizontally, so that the middle of the tree may be kept open; and never shorten any of the shoots in summer, unless to furnish branches to fill vacant places on the wall; and never do this later than April. At Michaelmas shorten these shoots, as was directed for the first year; the strong ones may be left nine inches, and the weak six or seven at most.

The following year's management will be nearly the same with this; but only observe, that apricots produce their blossom-buds, not only upon the last year's wood, but also upon the curzons, or spurs, which are produced from two years wood: great care should therefore be taken in the summer-management, not to hurt or displace these. Observe also to shorten your branches at the winter-pruning, so as to furnish fresh wood in every part of the tree; and be sure to cut out entirely all the luxuriant branches, or displace them as soon as they are produced; because if they were left to grow, they would exhaust the nourishment from the bearing branches, which cannot be too strong, provided they are kindly; for the more vigorous your tree is, the more likely it will be to resist the injuries of the weather: and trees are often brought to so weak a condition, as to produce only faint blossoms, and then most or all of the bearing branches will die. This misfortune, which is entirely owing to mis-

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management, is generally considered as the effect of a blight; and perhaps most of the blights we complain of proceed from the same cause.

These few rules well executed, together with a little observation and care, will be sufficient; for without diligent observation, there can be no such thing as a skilful manager, be his instructions what they will.

The Brussels and Breda apricots, being for the most part planted for standards, will require very little pruning or management; only observe to take out all dead wood, or such branches as cross each other: this must be done early in autumn, or in the spring, after the cold weather is past, that the part where the incision is made may not canker. *Miller's Gardener's Dictionary.*

APRIL, in chronology, the fourth month of the year, containing thirty days. It is formed from the Latin *Aprilis*, which is derived from *aperio*, to open, because the buds begin to open during this month.

APRON, in gunnery, that piece of lead which covers the touch-hole of a piece of ordnance.

APSIDIS, in astronomy, a term used indifferently of either of the two points of a planet's orbit, where it is at greatest or least distance from the sun or earth; and hence the line connecting those points is called the line of the apsides. The apsis at the greatest distance from the sun is called the aphelion, and at the greatest distance from the earth the apogee; while that at the least distance from the sun is termed the perihelion, and at the least distance from the earth, the perigee, &c.

APUS, or the bird of Paradise, in astronomy, a constellation in the southern hemisphere, not visible in our latitude. It is near the southern pole, between the *triangulum australe*, and the *chameleon*; and consists of eleven stars.

AQUA-FORTIS, a corrosive liquor distilled from nitre and vitriol, as follows.

Put vitriol into an earthen or iron pot; if you make a fire under it, the vitriol begins to melt and smok; by increasing the fire gradually, it thickens and assumes an ash-colour. Let it be stirred with a twig before it becomes solid, till it be perfectly dry; but let it be taken as yet boiling out of the pot; for if it grows cold therein, it will stick so fast that you will hardly be able to get it out. Pound to a subtile powder three pounds weight of this calcined vitriol, and mix them well with four pounds

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pounds of nitre well dried, and pulverized very fine. Put these together in a cucurbit, or retort, or iron-pot, and then put it in a furnace. At first, let the fire be made not much greater than is necessary to boil water. When the recipient grows warm, continue the same degree of fire, till all the phlegm is expelled, which you will know from the diminution of the heat of the recipient; increase the fire gradually, till you see a few yellow vapours arise. Keep up the same fire for an hour or two, and make it so strong as to warm the vessel moderately. Continue this for some hours, and letting the vessels cool, pour the liquor, now emitting reddish fumes, out of the recipient into a glass vessel, having a glass stopple: this liquor thus prepared is your aqua-fortis.

For security's sake, you must leave, in the closure of the recipient and vessel that contains the matter to be distilled, a hole, which may be stopped and opened with a wooden peg; for if you happen to exceed the just degree of fire, especially in the beginning of the operation, the first and more subtle spirits, which are very elastic, come forth; the opening therefore of the hole may give them a passage, lest the vessels should burst, which would be very dangerous. As the extracted spirits of nitre are with difficulty condensed into drops, especially in sultry weather, it will be proper, by reason of the calcined ingredients, to pour into the recipient one quarter part of pure water, or rather of the phlegm, extracted out of the aqua-fortis; by which means the spirits will be much easier received.

AQUA-MARINA, in natural history, a precious stone of a colour compounded of green and blue, nearly resembling that of sea-water, from whence the name. The most beautiful aqua-inarina comes from the East-Indies; and it is said that some of them are found on the borders of the Euphrates, and at the foot of Mount Taurus. The occidental ones come from Bohemia, Germany, Sicily, the Isle of Elba, &c.

AQUA-REGIA, a corrosive menstruum having the power of dissolving gold. It is made in the following manner. Take a pound of common salt; melt it in a clean crucible or iron ladle; put it out into an iron mortar, and when cold break it into small pieces. Put these into a retort, and pour upon them twice their weight of good aqua-fortis. Place the retort in a sand furnace, lute on a receiver, and apply a gradual fire, till no more liquor drops

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from the nose of the retort.—An aqua-regia may also be made, by mixing one part of spirit of salt with three of aqua-fortis; or by dissolving the same quantity of sal-ammoniac in it: but this should be done slowly, and by degrees, otherwise great quantities of offensive fumes will arise. This menstruum dissolves iron, copper, tin, gold, mercury, regulus of antimony, bismuth, and zinc; but not silver, unless it be deficient in strength.

AQUÆDUCT, in architecture and hydraulics, a canal supported by stone, timber, &c. for conveying water from one place to another.

AQUARIUS, in astronomy, a constellation which maketh the eleventh sign in the zodiac, marked thus, ♒. It consists of forty-five stars in Ptolemy's catalogue; of forty in Tycho's, and in the Britannic catalogue of ninety-nine.

AQUATIC, in natural history, an appellation given to such things as live or grow in the water.

AQUEOUS, something abounding with, or partaking of, the nature of water.

AQUEOUS Humour, in anatomy, called also the albugineous humour, is the utmost of three humours of the eye, and fills up both its camere. In this the uvea fluctuates, as it were, and moves at liberty; this humour also, when lost, will be repaired by nature.

AQUIFOLIUM, or **AGRIFOLIUM**, the holly tree, in botany, an ever-green shrub very well known, and was formerly planted in gardens, as an ornament. The manner of raising this shrub is by sowing the berries as soon as they are ripe, where they will continue a year and a half before they spring. The best time of transplanting this tree is in the beginning of April, in moist weather, and then there will be little danger of their growing.

AQUILA, in astronomy, a constellation of the northern hemisphere, consisting of fifteen stars in Ptolemy's catalogue, of seventeen in Tycho's, and of seventy in the Britannic catalogue.

AQUILA Marina, the sea-eagle, a fish of the pistinacha kind, with a head resembling, in some measure, that of a toad.

AQUILEGIA, *Columbine*, in botany, a plant with a branched and fibrous root, of a sweetish taste. The colours of the flowers are various, as blue, red, white, flesh-coloured, and green, upon which account it is cultivated in gardens, and they flower in May and June.

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ARA, the altar, in astronomy, a constellation of the southern hemisphere, consisting of eight stars.

* **ARABIA**, an extensive country in Asia, lying in between fifty-two and seventy-seven degrees of longitude, and twelve degrees thirty minutes and thirty-five degrees of north latitude. It is a peninsula, bounded on the west by the Red Sea, or Arabic Gulph; on the north by Syria; on the north-east by the Euphrates, the gulph of Basra, or Persian gulph, and the gulph of Ormus; and on the south by the streights Bab-el-mandel, and the Arabian Sea. It is in length, from the streights Bab-el-mandel, to the north part near the Aleppo, one thousand three hundred and fifty miles; and in breadth, one thousand two hundred and sixty miles. It is divided into Arabia Deserta, the Desert Arabia, whose chief town is Anah; Arabia Petraea; and Arabia Felix, or Arabia the Happy, the capital of which is Sanaa.

Arabia Petraea, which is to the north, has a chain of mountains to the east, and another to the south; the first separates it from Arabia Deserta, and the other from Yoman. It was anciently the abode of the Idumaeans, the Moabites, the Midianites, and the Amalekites. In this country the Israelites wandered forty years after they came out of Egypt.

Arabia Deserta is full of vast deserts. Those that have travelled over them affirm, that there is not a tree to be seen for many days journey, nor any thing else but a boundless plain. There is but one ridge of mountains, about which travellers find tolerable water. The only part where there is pasture, trees, and fruits, is on the borders of the Euphrates, where there are two tolerable towns, Anah and Tegba; also the ruins of Palmyra, in which they made themselves a kind of houses or huts. Except the inhabitants of these, the rest live in tents, and endeavour to rob the caravans.

Arabia Felix is the best country of the three, and yet has many barren mountains and deserts, without habitations or water. However, the fruitful parts produce drugs, dates, oranges, lemons, corn, grapes, spices, great quantities of coffee; and also olibanum, myrrh, cassia, gum arabic, balm, and manna; and the sea produces coral and pearls. Their horses and camels are in high esteem. They have very few rivers, and those small ones, the principal of which are Afan, Falg, and Prim.

The Arabians were formerly called Ishmaelites; they afterward assumed the name of Saracens, which they thought more

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honourable. Mahomedism had its birth in this country, and has spread greatly in Asia and Africa. In general, they have a swarthy complexion, a stern look, and seem to be thoughtful and melancholy; they are sober, very superstitious, use the name of God frequently, and yet many of them are cruel to foreigners, cheats in trade, and robbers in the deserts. The Arabs tents are made of goats hair, which are wove and spun by the women, and serve for their whole families; for in the winter, their horses, as well as wives and children, all lodge together: the emirs, indeed, who are a kind of governors, have two for themselves and another for their ladies, besides a little one for servants. When they encamp, the emir's tent is in the middle, and the rest all round, at a considerable distance: the place is generally on the top of a hill, that they may look all round them, to prevent being surprised, and to discover a booty. The common Arabs have no other furniture than mats, counterpanes, and cushions, with a stone for a bolster, covered with a mat. In the summer-time, they lie in the open air. They can take down their tents, pack up their furniture, and decamp in two hours time. Their baggage is carried by camels and oxen; the women walk a-foot, carrying their young children in their arms; and the men mount their horses, and put themselves in a fighting posture. The diet of the Arabs is generally milk-meats, honey, oil, rice, pulse, beef, mutton, goats flesh, and the flesh of camels. Their bread consists of cakes, which they bake every day in pans, in the ashes, or in ovens, which are sometimes large jars made for that purpose; they are made of nothing but flower and water: their drink is water: they have coffee every morning for breakfast, and after meals; their usual dinners are boiled meat, with rice soup and rice pudding. Their butter is as rank as tallow; and therefore they dress beans, lentils, and other pulse with oil. Besides these, when they are near Syria, they get figs, raisins, dates, apples, pears, dried apricots, and melons. Smoking tobacco is of great use among the men, women, and children. The greatest persons have their provisions placed on a round piece of leather laid upon the ground, in dishes and plates of copper, with wooden spoons, sitting cross-legged all round it, and a long piece of striped linen serves for napkins. The dress of the emirs resembles that of the Turkish quality; which, in winter, is a pair of linen drawers, or breeches; a fine shirt, the back part of the sleeves of which

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which hang to the ground; a caftan of fatten or mohair, made like a caffock, which reaches down to the middle of their legs, and has large sleeves; it is bound to the body with a leathern belt, fix inches broad, with clafps to make it ftraier or let it out; it is embroidered with gold and filk, and fet off with plates of gold; to this they hang a fhort knife adorned with jewels; they have fmall crooked poniards, with a fhagreen ftabbard, which they put through the belt; the hilt is of filver or fome other valuable fubftance: over their drawers they wear a chackier, which ferves for breeches, ftockings, and fhoes; they are made of red, purple, or violet, but never green, that being their prophet's colour; the foot is of yellow leather: the upper garment is a long cloth velt, with sleeves, and lined with fur. The ladies have mullin drawers, and fhifts embroidered with filk at the ends and on the feams; alfo little waiftcoats of cloth of gold, fatten, or other filk ftuffs, faftened with two buttons under a fmall girdle of gold or filver, or of gold and filk lace, with gold or filver clafps; the upper part of the waiftcoat is open all along the breaft, with buttons on each fide, which are only for ornament, this part being never buttoned; the sleeves are clofe and fhort, for they do not reach to the elbow, below which the fhift-sleeves appear and hang down to the ground: they have caftans, which they put on in winter, made like waiftcoats, only they reach to the ground, they tuck up the fhirts before, and draw them through the fides of their girdle, that they may not be in the way, and to fhew the embroidered flowers on their drawers and fhifts: their upper garments are of fatten and velvet, like the men's, and fometimes of gold brocade. They walk bare-foot on carpets, while they are within; at other times, they wear fmall neat fhppers; and when they are abroad, they put on plaited bufkins. Their head-drefs is a gold or filver bonnet, made like a cap, and incircled with mullin embroidered with gold and filk, over which is a fillet of coloured gauze, which they faften upon their forehead. When they go out, they throw a large mullin veil over all, which covers their head, neck, face, and fhoulders, falling down below their girdle. The drefs of the common Arabs confifts only in a courfe fhirt with long sleeves, a pair of linen drawers, and a coarfe callicoe caftan, with a leathern belt about their middles, wherein they ftick their poniard; they adorn the hilt with little pieces of

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filver money: their turbans confift of white mullin wrapped round a red cap, one of which hangs a little way down, and the other is wrapped about their necks to keep off the heat of the fun. The mean fort of women have only a blue fhift, with a linen girdle, and a veil over their heads, which they wrap their necks in, and cover the lower part of their face up to their nofes. The maids cover their faces down to their eyes. In fummer they go bare-foot, and in winter they wear fhppers. When they cannot get vefts, they wear jackets quilted with cotton.

It cannot be faid that thefe Arabs ever marry for love, for they never fee their wives faces before the ceremony, unlefs it be done by ftealth. The bride is prepared with bathing, perfumes, and difcolouring the face: they paint figures on her arms, and every part of the body, and drefs her with all the finery they can procure; then fet her upon a mare or camel, covered with a carpet, and fing her praifes all the way to the bridegroom's abode. The men take care of the bridegroom, caufing him to bathe, and then drefs him, and carry him back in triumph on a mare. After this the men and women feaft feparately, and at night they are brought together. When the women bring in the bride, the bridegroom fits like a ftatue, and takes no notice of what they do or fay, till fhe throws herfelf at his feet, at which time he claps a piece of gold or filver on her forehead. This is repeated thrice, and each time the bride comes in a different drefs. This done, they are left to confummate.

The Arabs are naturally lean, ftrong, and inured to hardships: they are very patient under difeafes, and fay, "there is no phyfician but God." However, they fometimes venture upon the noftrums of old women, and are very fond of charms. They hate bleeding, becaufe, as they fay, the life is in the blood; but when they are wounded, they are glad of a furgeon's affiftance if they can get it. The language of the Arabs, in general, is ancient, and the moft copious in the world. Thofe that underftand it fay it is the moft beautiful. The Arabs make ufe of lunar years, and their epocha begins Wednesday the 16th of July, 662, which they call the Hegira, which is the time that Mahommed fled from Mecca.

ARABIAN, relating to Arabia, or the Arabs.

ARABIAN, or ARABIC Tongue, a branch or dialect of the Hebrew.

ARABIAN Figures, or *Characters*, the numeral figures commonly used in arithmetical computations.

ARABIAN Philosophy, the state of philosophy among the ancient Arabians. Some men of letters have asserted, that the ancient Arabs applied themselves to philosophical speculations; and to maintain their opinion, raise imaginary systems which they attribute to them, and draw in the religion of the Sabæans to their aid, which they pretend to have been the offspring of philosophy. But all they advance in favour of this opinion is founded on assertions and conjectures; and what are those, where proof and testimony are wanting? They are even forced to acknowledge that the Greeks were of another opinion, looking on them as a most barbarous and ignorant people, without the least tincture of learning. If credit may be given to Abulfaragius, the Arabian writers themselves confess, that before Isfamin they were sunk into the deepest ignorance.

Tho' it should be granted that the Arabs were the descendants of Abraham, that the Queen of Sheba, who came to Jerusalem to admire the wisdom of Solomon, and was the most expert, and sagacious woman of her time, frequently puzzling all the Kings of the East with her wise questions, and that these Magi, or wise men, who came from the east to worship our Saviour, were of Arabia, it cannot be inferred from thence, that the Arabs had made any great progress in Philosophy. Yet it is agreed, that before the time of Isfamin to whom the advance in learning in that country is owing, they spoke their native language well, and had some knowledge of astronomy, and succeeded in some works of invention; as oratory, poetry, &c.

The Arabian philosophy was nothing but Sabianism, which was a mixture of shameful idolatry, and ridiculous superstition; much more likely to subvert and extinguish reason than propagate true philosophy; besides, it is not agreed in what age this Sect first appeared. Mahomet laboured strenuously to abolish it; and he is even said by some to have carried his opposition so far, as to prohibit the very study of philosophy. But his followers by degrees got over that restraint; the love of learning increased, and the philosophy of Aristotle was established among them, during the memorable caliphate of **Al-Mamon**. Avicenna flourished in the

eleventh century, and Averrhoes an hundred years after him; so that the honour of translating the Greek philosophy into Arabic, cannot belong to them, notwithstanding what has been said on that subject; though they were doubtless the chief propagators of it through the countries of Europe.

ARABIAN Poetry, was antiently no other than rhiming; for it was destitute both of measure and cadence. But about the close of the eighth century, and during the caliphate of **Al-Raschid**, it became an art, and was regulated by laws of prosody. Renaudot tells us, that the Arabian compositions in verse are still wild and irregular, being neither epic, dramatic, nor lyric: in short, not reducible to any particular kind. Their hymns to the Deity, and their tales, are in the same style.

ARABIAN Physic, and *Physicians*, succeeded the Grecian, and handed down the art to us, with considerable improvements, chiefly in the pharmaceutical and chemical parts.

ARABLE Land, in husbandry, that land which is fit for tillage, or has actually been plowed.

ARAC, or **ARRAC**, a spirituous liquor imported from the East-Indies.

It is extracted from a vegetable juice called toddy, which flows by incision from the cocoa-nut tree, or from rice. This juice, after being fermented, is distilled in the common manner, and the produce is the arac.

ARACHNOIDES, in anatomy, an appellation given to several different membranes, as the tunic of the crystalline humour of the eye, the external lamina of the pia mater, and one of the membranes of the spinal marrow.

ARAL, a great lake, to the eastward of the Caspian Sea, being seated between forty-two and forty-eight degrees of north latitude, and is near three hundred and sixty miles in length, and one thousand miles in circumference. It is surprising that this lake should be quite unknown to geographers, till within these few years. Several great rivers, which were supposed to run into the Caspian Sea, are now known to fall into this lake, particularly the Sihun or Sirr, and the Gihun or Amo, so often mentioned by the oriental historians. It lies between fifty-six and sixty-two degrees of east longitude, and between twelve and forty-seven

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of north latitude, in the country of the independent Tartars.

ARÆOMETER, or WATER-POISE, an instrument to measure the density or gravity of fluids.

It is generally made of a thin glass ball with a taper neck, hermetically sealed at the top, having first as much mercury poured into the ball, as will keep it swimming in an erect position. The neck is divided into equal parts, and properly numbered; so that the lightness of the fluid is known by the depth the aræometer sinks in it; it being evident that the heavier any fluid is, the less will be the distance the instrument will sink in it; and vice versa.

* **ARARAT,** a mountain in Armenia, imagined to be the place where Noah's ark rested. It is exceeding high, and always covered with snow. Several travellers have attempted to get at the top, but could never succeed. However, they have been high enough to tremble at the terrible precipices when they looked downwards.

ARÆOTICS, in medicine, remedies which rarify the humours, and render them proper for being carried off by perspiration through the pores of the skin.

ARBITER, in civil law, a judge nominated by the magistrate, or chosen by the two contending parties, to decide their differences according to law. The civilians make a difference between arbiter and arbitrator, though both found their power on the compromise of the parties; the former being obliged to judge according to the customs of the law, but the latter is at liberty to use his own discretion.

ARBITRARY, whatever is left to the choice or determination of men, or not fixed by any positive law or injunction. Thus arbitrary fines are mulcts imposed at the pleasure of the court or judge.

ARBITRATION, ARBITRAGE, or ARBITRAMENT, a power given by contending parties to some person or persons to determine their disputes.

ARBITRATOR, a private extraordinary judge, chosen by the mutual consent of both parties, to determine controversies between them.

ARBOR, the Latin appellation for any tree in general.

ARBOUR, in gardening, a kind of shady bower, formerly in great esteem, but now rejected, on account of its being damp and unwholesome. Arbours are generally made of lattice-work, either in wood or iron, and covered with elms,

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limes, hornbeams; or with creepers, as honeysuckles, jessamines, or passion-flowers; either of which will answer the purpose exceeding well, if properly managed.

* **ARBUTHNOT (ALEXANDER)** was the son of the baron Arbuthnot, and was born in the year 1538. He published Buchanan's History of Scotland, in which, though he acted only as editor, it procured him a great deal of ill will, and in all probability gave king James VI. an ill impression of him. His private character was very amiable; he was learned without pedantry, and a great encourager of learning; he had a good taste in poetry, was an eminent divine, and was well versed in philosophy and the mathematics. He died at Aberdeen, on the 20th of October, 1583. He also wrote *Orations on the Origin and Dignity of the Law*.

ARBUTHNOT (Dr. JOHN) an eminent physician in the reign of queen Anne, he was the son of a clergyman, in Scotland, and educated in the university of Aberdeen, where he took the degree of doctor of physic. On his coming to London, his extensive learning, and agreeable conversation, introduced him, by degrees, into practice, and he became eminent in his profession; in 1709, he was appointed physician in ordinary to queen Anne. His polite learning, genteel behaviour and excellent abilities, procured him the acquaintance and friendship of the most celebrated wits, Pope, Swift, and Gay. He died of an asthma, in February 1735. He has shewn by his works that he was equal to any of his cotemporaries, in wit, humour, vivacity, and learning; and was superior to most men in the moral duties of life, in acts of humanity and benevolence.

ARBUTUS, the strawberry-tree, in botany, a genus of ever-green trees.

Of which there are 3 Species; 1. The common strawberry-tree. 2. The strawberry-tree with longer flowers, and egg-shaped fruit; and 3. The strawberry-tree with double flowers.

This tree has its name from the resemblance the fruit bears to that of a strawberry, but is of an austere sour taste.

The time of this fruit being ripe is in the months of October and November; at which season the flowers are blown for the next year's fruit; so that from the time of flowering to the ripening of the fruit is one whole year.

The best method of propagating these trees, says Mr. Miller, is by sowing their seeds, which should be preserved in dry sand, till March;

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March; at which time you should sow them upon a very moderate hot bed, (which greatly promotes their vegetation) covering it about a quarter of an inch with light earth, and screening it from frosts, or great rains. Towards the latter end of April your young plants will appear; you must therefore keep them clear from weeds, and give them frequent waterings, as the season may require, and shade them in hot weather; and if your plants have done well, they will be, by autumn, about five or six inches high: but as these trees are subject to receive damage from frosts, especially while they are young, you must hoop the bed over, that when bad weather comes, you may cover it with mats and straw to keep out the frost.

The beginning of April following you may transplant these trees, each into a small pot; but, in doing of this, be very careful to take them up with as much earth to their roots as possible; for they are bad rooting plants, and very subject to miscarry on being removed; and it is for this reason I advise their being put into small pots: for when they have filled the pot with roots, they may be turned out into large pots, or the open ground, without any hazard of their dying.

When you have put your young plants into the small pots, you should plunge them into another very moderate hot-bed, to encourage their taking new root, shading them from the sun in the middle of the day, and giving them water as they may require; in this bed it will be proper to let the pots remain most part of the summer; for if the pots are taken out, and set upon the ground, the smallness of their size will occasion the earth to dry so fast, that watering will scarce preserve your trees alive; but if they are kept growing all the summer, they will be near a foot high by the next autumn: but it will be advisable to screen them from the frost during their continuance in pots, by plunging them into the ground in a warm place, and covering them with mats in bad weather.

When your trees are grown to three or four feet high, you may shake them out of the pots into the open ground, where they are to remain: but this should be done in April, that they may have taken good root before the winter, which would be apt to damage them if newly planted.

Miller's Dict.

ARCANUM, a secret, generally used to imply a remedy, whose composition is concealed, to increase its value.

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ARCA CORDIS, in anatomy, the same with pericardium. See **PERICARDIUM**.

ARCH, in geometry, some part of a curve, intercepted between two points.

ARCH of a Circle is a part of its circumference.

Equal ARCHES, those which contain the same number of degrees, and are cut from the same circle.

Similar ARCHES, those which contain the same number of degrees, but cut from unequal circles.

Diurnal ARCH, in astronomy, that part of a circle which is described by any heavenly object between its rising and setting.

Nocturnal ARCH, that part of a circle described by a heavenly object between its setting and rising. The diurnal and its succeeding nocturnal arch are together equal to a whole circle.

ARCH of Progression, or Direction, the arch of the zodiac, which a planet appears to pass over when it moves in consequentia, or according to the order of the signs.

ARCH of Retrogradation, an arch of the zodiac described by a planet, while it is retrograde, or its motion contrary to the order of the signs.

ARCH of Vision, an arch of an azimuth circle, intercepted between the center of the sun, after its setting, and the horizon, when a star, before hid in his rays, begins to appear again.

ARCH, in architecture, a concave building, erected on a mould bent in the form of a curve, for supporting some structure.

Arches are either circular, elliptical, or straight, as they are improperly called by workmen.

Circular ARCHES are of three kinds, semicircular arches, scheme arches, and arches of the third and fourth point.

Semicircular ARCHES have their centers in the middle of the lines drawn from one foot to the other.

Scheme or Skene ARCHES are less than a semicircle, some containing ninety, and others only seventy degrees.

ARCHES of the third and fourth Point, consist of two arches of a circle, meeting in an angle at the top, being drawn from the division of a chord into three or four parts at pleasure.

Elliptical ARCHES consist of semi-ellipses, and have commonly key-stones and impost. They are usually described by workmen on three centers.

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Straight ARCHES are those used over doors and windows, having plain straight edges, both above and below, parallel to each other; but both the ends and joints point towards a center. See **BRIDGE**.

Triumphal ARCH, a stately gate of a semicircular form, adorned with sculptures, inscriptions, &c. erected in honour of those who have deserved a triumph.

ARCH-ANGEL, in theology, an intellectual being, or angel of the second order in the celestial hierarchy.

ARCHANGEL, in botany, a name given to the lamium. See **LAMIUM**.

ARCH-BISHOP, a prelate that has several suffragan bishops under him. Though bishops, in the primitive church, were all vested with the same office and authority, yet, as Christianity increased, it was found necessary to enlarge the episcopal power: therefore, as before there was commonly a bishop placed in every great city, so now, in every metropolis, as the Romans called it, or mother-city, of every province, wherein were courts of civil judicature, there was a metropolitan, or archbishop, who had ecclesiastical jurisdiction over all the bishops of that province. His jurisdiction consisted in ordaining, or ratifying, the elections and ordinations of all other bishops; and once a year he was to summon them all to a synod, in which he presided, to enquire into their conduct, to censure with suspension, or deprivation, and to hear and determine causes between contending bishops.

The first establishment of archbishoprics in England, says Bede, was, in the time of Lucius, said to be the first Christian king of England; who, after the conversion of his subjects, erected three archbishoprics, in London, York, and Landaff, then called Caerleon. The dignity of archbishop continued in the see of London 180 years, when it was translated to Canterbury, where it has continued ever since. York remains a metropolitaneal see to this day. The archbishop of Canterbury is styled "Primate and Metropolitan of all England;" and the archbishop of York, "Primate and Metropolitan of England."

ARCHDEACON, an ecclesiastical dignitary, or officer, next to a bishop, whose office extends over part, or sometimes the whole diocese. There are sixty archdeacons in England, who visit the parishes subject to their jurisdiction, enquire into the repairs of churches, reform abuses, suspend, excommunicate, &c. And in

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many places, induct clerks into their benefices.

ARCH-DUKE, a title given to dukes of a greater authority and power than other dukes.

ARCHER, in the ancient military art, a person who fought with a bow and arrows.

ARCHES, or *Court of ARCHES*, the supreme court belonging to the archbishop of Canterbury, to which appeals lie from all the inferior courts within his province.

ARCHETYPE, the original model of a work, which is copied after to make another like it.

This term is used by minters to signify the standard weight by which the others are adjusted.

ARCHIL, *Archilla*, in botany, a whitish moss growing upon rocks in the Canary and Cape Verd Islands, and which yields a rich purple tincture, fugitive indeed, but extremely beautiful.

The dyers do not often use this drug by itself, on account of its dearth and the perishableness of its beauty. The chief use they make of it is, for giving a blood to other colours, as pinks, &c. This is effected by passing the dying cloth or silk through hot water, lightly impregnated with the archil. The bloom thus communicated soon decays upon exposure to the air. Mr. Hellot informs us, that by the addition of a little solution of tin, this drug gives a durable dye; that its colour is at the same time changed towards a scarlet; and that it is the more permanent, in proportion as it recedes the more from its natural colour.

It is remarkable a solution of archil in water, applied on cold marble, stains it of a beautiful violet or purplish-blue colour, far more durable than the colour which it communicates to other bodies.

ARCHILOCHIAN, a term in poetry, applied to a species of verse invented by Archilochus. These verses consist of seven feet, the four first of which are ordinarily dactyls, though sometimes spondees, and the three last trochees.

ARCHIPELAGO, in geography, a general name for a sea interrupted with a great number of islands. The most celebrated Archipelago, and that to which the name is in some measure appropriated, lies in the sea between the coasts of Greece, Macedonia, and Asia.

ARCHITECT, a person skilled in architecture, who not only draws the plans of edifices, but also superintends and directs the artificers.

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ARCHITECTONIC, something endowed with the power and skill of building, or calculated to assist the architect.

ARCHITECTURE, the art or science of erecting edifices, either for habitation or defence.

Architecture, is doubtless, of very great antiquity, and was, perhaps, preceded only by agriculture itself. Hence Theodoric calls the latter the eldest sister of architecture. The excessive heats of summer and severity of winter, the inconvenience of rain, the violence of wind, soon instructed mankind to seek for shelter, and provide themselves with proper retreats to defend themselves against the inclemencies of the weather. But these at first were only small huts, built very rudely with the branches of trees, and very indifferently covered. In the time of Vitruvius, they shewed at Athens, as a curious relic of antiquity, the roof of the *Areopagus*, made of clay; and at Rome, in the temple of the Capitol, the cottage of Romulus thatched with straw.

After these rude essays, buildings of wood were introduced, and these suggested the ideas of columns and architraves. The columns were modelled from the trees used to support the roof and the architrave from the large beam laid between the columns and the roof.

But, the workmen became every day more industrious and more expert. Instead of those slight huts, with which they were at first contented, they began to erect walls of stone and brick upon solid foundations, and to cover them with boards and tiles. In process of time, their reflections, founded on experience, led them to discover the just rules of proportion.

Moses tells us that Cain built a city; and hence we learn both the time when, and place where, architecture had its origin. Asia was therefore the cradle of architecture; there it had its birth, and there it attained a considerable degree of perfection; and thence it spread into other parts of the world. Babylon and Ninevah, the largest and most magnificent cities in history, were built by Nimrod the grandson of Noah, and the first of conquerors. They were not indeed at first carried to that prodigious magnificence which afterwards astonished the world; but they were very large and extensive. It is indeed a misfortune that not one single treatise written by the Greeks upon architecture, has reached our hands. The

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only books we have of theirs upon this subject, are the structures of those ancient masters still subsisting, whose beauty is universally acknowledged, and which have been the admiration of all good judges. These structures are superior to all the precepts they could have left us; as practice in every thing infinitely excels theory. The Romans borrowed the art from the Greeks, and under Augustus, when good taste universally prevailed, carried it to a great degree of perfection. But it fell with the western empire, and was not recovered for the space of twelve centuries. In the two last centuries, the architects of Italy, England, and France, employed themselves wholly in retrieving the primitive simplicity and beauty of ancient architecture; and so far succeeded, that our churches, palaces, &c. are now built after the models of antiquity. Hence every thing is, or should be, proportioned to the bulk, strength, delicacy, richness, or simplicity desired; and consequently a different proportion observed in the various members of the edifice. In these different proportions consist the five orders of architecture, all invented at different times and on different occasions. These are called the Tuscan, Doric, Ionic, Corinthian, and Composite. See **ORDER**.

Architecture is divided into civil, military, and naval.

Civil **ARCHITECTURE** teaches the method of erecting buildings, as palaces, churches, private houses, &c. and the rules to be observed are solidity, convenience, and beauty; order, disposition, proportion, decorum, and œconomy. Solidity implies the choice of a good foundation, and sound materials; convenience consists in so ordering the parts of an edifice that they may not embarrass one another; beauty is that agreeable form and pleasing appearance which it exhibits to the eye of the spectator; order gives every part of the building a convenient size; and the disposition is the agreeable union of all the parts. Proportion is the relation that all the work has to its parts, and which every one separately hath to the whole; decorum teaches the architect to have a regard to design, custom, and nature; and œconomy, to consider the expence, in order to regulate the form and manner of the fabric. The only entire piece upon architecture among the ancients is that of Vitruvius: and the most celebrated of those who have written on that subject since his time, are, Baptista,

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tista, Alberti, Palladio, Scamozzi, Blondel, Goldman, Perrault, Sir Henry Wotton, Sturmibus, Ware, and Wolfius.

Military ARCHITECTURE, is what is generally called fortification. See FORTIFICATION.

Naval ARCHITECTURE, the art of building ships. See SHIP-BUILDING.

Counterfeit ARCHITECTURE, that which consists of projections, painted either in claro obscuro, or in colours imitating marble.

ARCHITECTURE in Perspective, a sort of building, wherein the members are of different modules, and diminish proportionally to their distance, in order to make the structure appear longer to the view than it really is.

ARCHITRAVE, in architecture, that part of the order of columns, lying immediately upon the capital. It has its name from representing the principal beam in a timber building. This member when placed over the chimney, is called the mantle-piece; and when over a door or window, the hyperthyron.

ARCHIVE, or **ARCHIVES**, an apartment in which the records, charters, and papers of a state or community, are deposited.

ARCHMARSHAL, the grand marshal of the empire; a dignity belonging to the elector of Saxony.

ARCHTREASURER, the grand treasurer of the German empire; a dignity belonging to the duke of Brunswic, king of Great Britain. It is also claimed by the elector palatine.

ARCTIC, in astronomy, an epithet applied to the north-pole, and also to a small circle of the sphere parallel to the equator, and $23^{\circ} 30'$ distant from the north pole. See POLE and SPHERE.

ARCTOPHYLAX, in astronomy, the name of a constellation otherwise called Bootes. See BOOTES.

ARCTURUS, in astronomy, a star of the first magnitude in the skirt of Bootes. Its longitude is $20^{\circ} 58' 2''$ of $\cdot$, and its latitude $3^{\circ} 57' 0''$ N.

ARCUTIO, the name of a machine consisting of a board covered with hoops, used by the nurses of Florence, to prevent the child from being overlaid. Every nurse is obliged to lay her child in an arcutio, under pain of excommunication.

ARDASSES, in commerce, the coarsest of all the silks brought from Persia.

ARDEA, the heron, in natural history, a genus of long beaked birds; distinguished from all others by having the

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middle toe of each foot serrated, or jagged, with a series of scales on its outer side.

ARDENT; something hot, or as it were burning.

ARDENT Fever, a violent burning fever. See FEVER.

ARDENT Spirits, those spirits distilled from fermented vegetables; so called because they easily take fire and burn.

AREA, in a general sense, any plain surface whereon we walk, &c.

The word is Latin, and signifies a threshing-floor, &c.

AREA, in geometry, the superficial content of any figure. Thus if a figure, ex. gr. a field be in form of a square, and its side be 30 feet long, its area is said to be 900 square feet; or it contains 900 little squares, each a foot every way. For the method of finding the areas of figures, see each under its respective name.

AREA, in astronomy, the spaces which revolving bodies describe by means of rays drawn to the center of force.

ARENA, in antiquity, the place where the gladiators, &c. fought; so called from its being always covered with sand; to conceal the blood spilt in the combat, from the view of the people.

AREOPAGUS, a senate or sovereign court, held on Mars's Hill near Athens, famous for the justice and impartiality of its decrees. The power was very great; they had the disposal and management of the public funds; the care of all the young men in the city particularly belonged to them, and their power extended to all ages and sexes. Two things are very remarkable; the first, that they sat in the open air; and the second, that they heard and determined all causes in the dark, that, by seeing neither of the parties their judgment might remain unbiassed.

* **ARETHUSA**, in fabulous history, the daughter of Nereus and Doris, and companion of Diana, who changed her into a fountain to deliver her from the pursuit of her lover Alpheus.

* **ARETIN (GUINO)** a Benedictine monk, in the eleventh century, who became famous for discovering a new method of learning music by the six notes, *ut, re, mi, fa, sol, la*. Upon this subject he published a book intitled *Micrologus*, and a Letter, which has been inserted by cardinal Baronius in his Annals, under the year 1022.

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ARGEMONE, in botany, the thorny Mexican poppy, a genus of plants with rosaceous flowers, and a unilocular capsule for its fruit.

ARGENT, in heraldry, the white colour in the coats of arms of gentlemen, knights, and baronets; the white in the arms of sovereign princes, being called luna; and that in the arms of the nobility, pearl. This is expressed, in engraving, by the parts being left plain, without any stroke from the engraver.

ARGENTARIA CRETA, in natural history, an earth perfectly white and pure, found in Prussia, and greatly esteemed for cleaning plate.

ARGENTINA, in natural history, the name of a fish found in several parts of the Mediterranean.

The principal mark that distinguishes it from other fish, is the air bladder, which is conical at both ends, and outwardly looks as if covered with polished shining leaf silver. This is made use of to counterfeit pearls. It is often brought to the fish markets at Rome.

ARGENTINA, silver-weed or wild tansy, in botany, a low creeping plant, with winged leaves. It is perennial; common by the sides of rivulets and in moist uncultivated places; and flowers in June.

The leaves of argentina have been generally looked upon as strong astringents, and recommended as such in fluxes and hæmorrhages; but in fact, this astringency is very weak. The spiritous extract is stronger than the watery, and proportionably smaller in quantity.

* **ARGO**, in fabulous history, the ship wherein Jason and the rest of the Thesalian and Argive heroes sailed to Chelchis to fetch the golden fleece. This ship is said to have had fifty oars, and to have been fifty feet in length.

* **ARGONAUTS**, in fabulous history, the most distinguished youths of Greece, who accompanied Jason in his expedition to obtain the golden fleece. Authors are not agreed as to the names or number of these youths; however, the principal were Ancæus, Idmon, Orpheus, Augias, Calais, Zethus, Castor, Pollux, Tiphys, and Lynceus; it is also said, that Hercules was with them.

ARGO Navis, or the ship, in astronomy, is the name of a constellation of fixed stars in the southern hemisphere. The number of stars is 8 in Ptolemy's catalogue; in Tycho's 11; and Mr. Flamsteed's 25.

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ARGOL, red tartar. See **TARTAR**.

ARGUMENT, *Argumentum*, in rhetoric and logic, an inference drawn from premises, the truth of which is indisputable or at least highly probable.

ARGUMENT, in astronomy, a known arch, by the assistance of which we seek another unknown. Thus the argument of the moon's latitude is her distance from the node.

ARGUMENT, the abridgement or heads of a book, chapter, poem, &c.

ARGUMENTATION, the act of arguing; and the manner of framing arguments.

ARGUS, in natural history, the name of an uncommon serpent, found in Guinea; and so called from its being covered with spots from the head to the tail, resembling eyes.

* **ARGUS**, in fabulous history, the son of Aristor, was said to have had an hundred eyes, fifty of which were always open. Juno made choice of him to guard Io, whom he had transformed into a white heifer; but Jupiter pitying Io, for being so closely confined, sent Mercury, who, with his flute, charmed Argus to sleep, sealed up his eyes with his caduceus, and cut off his head: Juno to reward his fidelity, turned him into a peacock, and placed his eyes in his tail.

ARGUS is also the name of a very curious shell, about three inches long, two in diameter, and somewhat less in height. It is covered with a multitude of round spots, like eyes, from whence it has its name. It is brought from Africa and the East Indies.

* **ARGYLESHIRE**, in Scotland, a mountainous country, the inhabitants living mostly by grazing of cattle, hunting, and fishing. The coast is full of high rocks and black mountains, covered with heath. It has a provincial synod, containing five Presbyteries, and forty-nine parishes. This shire makes part of the Highlands, and has the Irish-Sea and frith of Clyde on the south, Perthshire on the east, Lochaber on the north-east, and several islands on the north-west.

* **ARGYRA**, in fabulous history, a nymph beloved by Solemnus, but he being unable to support her cruelty, died of grief; on which Venus changed him into a fountain that bore the nymph's name, whose waters had such an effect as to make those who bathed in it immediately forget their mistresses.

* **ARIADNE**, in fabulous history, daughter of Minos, king of Crete, who having

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having fallen deeply in love with Theseus, she gave him a clue, by which he escaped out of the labyrinth, after he had killed the Minotaur, and carried his fair deliverer to the isle of Naxos, where he ungratefully left her pregnant. But Bacchus afterwards coming thither, fell passionately in love with her, married her, and as a testimony of his affection, placed the crown she wore as a constellation among the stars.

ARIANS, in ecclesiastical history, a sect of heretics, who followed the opinions of Arius, a presbyter of Alexandria. He broached his heresy in the beginning of the fourth century. The Arians denied the three persons in the holy Trinity to be of the same substance; asserted that there was a time when the Son was not; that he was created in time, mutable in nature, and, like the angels, liable to sin; and that being united to human flesh, he supplied the place of a human soul, and consequently was subject to sufferings and pain. In their doxologies they ascribed "Glory to the Father, through the Son, and in the Holy Ghost."

ARIANISM, the doctrine or tenets of the Arians.

ARIES, the ram, in astronomy, a constellation of fixed stars, drawn on the globe in the figure of a ram. It is the first of the twelve signs of the zodiac, and is marked thus ♈.

The number of stars in the constellation Aries, in Ptolemy's catalogue is 18; in Tycho's 21; and in Mr. Flamsteed's 65.

* **ARION**, in fabulous history, a celebrated horse, more famous in poetic history than Bucephalus in the history of Alexander. Authors speak variously of his origin, though he is generally allowed to have been produced by Neptune, and nursed by the Nereids. Hercules mounted him when he took the city of Elis, and he won the prize for racing at the Nemean games.

* **ARIOSTO (LUDOVICO or LEWIS)** a celebrated Italian poet, born of a noble family, at the castle of Reggio, in Lombardy, in the year 1474. He translated several pieces out of French and Spanish into Italian, wrote seven satires and five comedies; but his Orlando Furioso, which he began when he was about thirty years of age, is the most celebrated of all his works. Passing one day by a potter's shop, he heard the potter uttering a stanza out of the Orlando Furioso, which he pronounced in so bad a manner, that A-

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riosto being vexed, broke with his stick several of the pots which stood exposed to sale. The potter expostulated with him in very severe terms, for injuring a poor man who had never injured him. "Yes," you have, said Ariosto, and I have not yet sufficiently revenged myself upon you for the injury you have done me to my face." He was however of an affable, easy, and condescending temper. His attachment to poetry did not prevent his engaging in public affairs, for he was employed in embassies and negotiations in different parts of Italy. He died at Ferrara on the 8th of July 1559. His Orlando Furioso has been translated into English by Mr. Huggins.

ARISTA, among botanists, a long needle-like beard, which stands out from the husk of a grain of corn, grass, &c. It is also called awn.

* **ARISTÆUS**, a fabulous history, the son of Apollo and Cyrene, was born in Lybia, and brought up by the Nymphs. He married Autonoe, the daughter of Cadmus, by whom he had Actæon. It is also said that he found out the art of extracting honey, and making oil and cheese; and that for his services to mankind, the Gods placed him among the stars; where he is the Aquarius of the Zodiac.

ARISTOCRACY, a form of government where the supreme power is lodged in the principal persons of the state, either on account of their nobility, their capacity, or their probity.

* **ARISTOPHANES**, the celebrated Greek comic poet, was a citizen of Athens. He exposed upon the stage the designs of the magistrates and generals of the Athenians, with great wit and severity. He flourished about four hundred and thirty-six years before the Christian æra; was cotemporary with Socrates, Plato, and Euripides, and composed above fifty comedies, of which, only eleven are now extant: these abound with the most refined and delicate wit.

* **ARISTOTLE**, or The Philosopher, was born at Stagira, a small city of Macedon, three hundred and eighty four years before the Christian æra. He was at first a libertine, and commenced soldier; but he soon determined to apply himself to the study of philosophy, and therefore went to Athens, to become one of Plato's disciples, and soon surpassed all the great men in Plato's school. After the death of Plato, three hundred and forty-eight years before Christ, Aristotle retired to Atarnya, a small city of Mysia, where his friend

Hermias reigned. That prince gave him his daughter, Pythias, in marriage. Some years after, king Philip appointed him preceptor to his son Alexander, which office he enjoyed eight years, when he retired to Athens, where he set up his school, and the magistrates giving him the Lyceum, he there taught philosophy to his disciples while he was walking with them; from whence his sect obtained the name of Peripatetics. At length Eurymedon, the priest of Ceres, accused Aristotle of impiety, when being afraid of suffering the fate of Socrates, he retired to Chalcis, where he died, aged sixty-three. Some assert that he poisoned himself, others that he died of the colic, and others, that he leapt into the Euripus, because he could not discover the cause of its ebbing and flowing. He left a daughter by Pythias, who was married to a grandson of Demaratus, king of Sparta; and he had by a concubine, a son named Nicomachus. Aristotle had a great share in the intrigues of the courts of Philip and Alexander; for philosophy was far from rendering him of a morose and savage disposition: on the contrary, he was an honest, tender, and generous friend. Aristotle wrote a great number of books, the most esteemed of which, are, his *Ethics*, his *Logic*, his *History of Animals*, his *Poetics*, and his *Rhetoric*.

There were many who followed the doctrine of Aristotle in the reigns of the twelve Cæsars, and their numbers greatly encreased under Adrian and Antoninus. Alexander Aphrodisius was the first professor of the Peripatetic philosophy at Rome, being appointed for that purpose by the emperors Marcus Aurelius, and Lucius Verus; and in the succeeding ages, the doctrines of Aristotle prevailed amongst almost all the men of letters.

ARISTOTELIAN, relating to the philosopher Aristotle.

ARISTOTELIAN Philosophy, the philosophy of Aristotle, sometimes called the peripatetic philosophy.

ARITHMETIC, the art or science of computing by numbers.

We have very little intelligence with regard to the invention of this inestimable science. Some attribute it to Seth, others to Noah, and the Turks to Enoch, whom they call Ednis. Many imagine it had its rise with the introduction of commerce, and consequently fix its epocha with that of the Tyrians, who did not begin to flourish till about a thousand years after the flood. Josephus tells us, that Abraham taught

the Egyptians arithmetic during the time of his sojourning in their country: though Pliny and Strabo say, that the inundations of the Nile gave occasion to their inventing both arithmetic and geometry. It is however certain, both these sciences were held in the highest veneration, and committed to the care of their priests, who founded their theology on them. The Greeks owed their knowledge in arithmetic to the Egyptians; and Pythagoras built his philosophical system upon numbers, affirming that the nature of numbers extends through the whole universe, and that the knowledge of numbers is the knowledge of the Deity. The ancient arithmetic, however, fell far short of the modern; their notation was very imperfect, and consequently the operations abstruse and tedious. They wanted the cypher, or a character that of itself signifies nothing, to fill up a place, and change the value of their numbers in a decuple progression, their series extending only to nine. We owe our present notation to the genius of the eastern nations, and received it from the Arabians, who learned it from the Indians. But when or by whom it was invented cannot be known. It was known in Europe before the year 1000, and in Britain before 1150.

The oldest treatise extant on the theory of arithmetic is the 7th, 8th, and 9th books of Euclid's *Elements*; where he has delivered the doctrine of proportion, and that of prime and composite numbers.

After the Arabian notation was known in Europe, we find many writers both upon the theory and practice; and as learning advanced, so did the knowledge of numbers, which by degrees received great improvements.

The fundamental rules of arithmetic are four, namely, addition, subtraction, multiplication, and division. See each under its proper article.

But besides these, there are other rules contrived for facilitating computations of every kind; as the rule of proportion, rule of three, or golden rule, the rules of fellowship, barter, exchange, interest, extraction of roots, &c. which the reader will find under the several heads of **PROPORTION**, **FELLOWSHIP**, **INTEREST**, **PRACTICE**, &c.

Common **ARITHMETIC** comprehends, besides the doctrine of integers, that of broken numbers, or fractions. See **FRACTION**.

ARITHMETIC of Infinites, the doctrine of infinite series. See **SERIES**.

Arithm.

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Instrumental ARITHMETIC, that which is performed by means of instruments, as rules, scales, Napier's bones, &c.

Literal or Specious ARITHMETIC, that performed by the letters of the alphabet. See ALGEBRA.

Logistical or Sexagesimal ARITHMETIC, the doctrine of sexagesimal fractions. See SEXAGESIMAL.

Universal ARITHMETIC, a name given by Sir Isaac Newton to algebra, or the calculation of quantities in general.

Common arithmetic has two kinds of principles; the first are general rules, independent of the characters made use of to express numbers: the second are rules which depend on these characters, and are properly called rules of arithmetic. The former contain only the general properties of proportions, and take place universally, be these proportions stated how they will.

Hence it follows, that by noting numbers by general expressions, though they do not denote one number more than another, we may form certain rules relative to operations, which may be performed by numbers so expressed. These rules shew the result of one or more operations performed by numbers expressed in a general manner, and in the most simple method; and this result is properly nothing more than arithmetical operation, expressed in characters, which will vary according to the different arithmetical values we assign the quantities substituted for numbers.

In order to set this idea of algebra in a clearer light, it may not be amiss to mention, in a cursory manner, the four common rules of arithmetic. Addition consists in adding any numbers proposed into one total, without any other operation. If for example, it were required to add two dissimilar quantities together, as a and b , we set them down simply $a + b$, the result of which is nothing more than an indication, that if a represents a certain number, and b another, these numbers must be added together. The expression $a + b$ is therefore nothing more than an indication of an arithmetical addition, the sum of which will be different, according to the different arithmetical values assigned to a and b . Suppose it were required to add $5a$ to $3a$, we may write $5a + 3a$; but it is plain that this may be expressed in a more simple manner: viz. $8a$; and consequently the arithmetical operation should be expressed in that manner.

Hence it follows, that addition in algebra expresses the sum or aggregate of several

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numbers, generally in the most simple manner, and saves the arithmetician as much labour as possible.

In subtraction, the thing is the same; for if it be required to subtract b from a , we write $a - b$; because it is impossible to express this operation in a more simple manner: but should it be required to subtract $3a$ from $5a$, it would be improper to write $5a - 3a$; because, if a had any numerical value, it would occasion the trouble of several arithmetical operations; but simply $2a$, which is more convenient in calculation.

The same thing is true in multiplication and division. If we would multiply $a + b$, by $c + d$, we might write indifferently $a \times c + d$, or $a + b \times c + d$; though the first method seems the more proper, because it requires fewer arithmetical operations: in the former there are only two additions and one multiplication necessary; in the latter, three additions and four multiplications. But if it should be required to multiply $5a$ by $3a$, we should write $15a$, and not $5a \times 3a$; because the first has only two arithmetical operations, and the second three. In the same manner, to multiply $a + b$ by $a - b$, we should write $a^2 - b^2$; because this result would be more commodious than $a^2 + ab - ab - b^2$, and at the same time furnishes an useful theorem, namely, that the product resulting from the sum of two numbers, multiplied by the difference of the same numbers, is equal to the difference of their squares.

In division, instead of writing $\frac{20ab}{5b}$ we should set down simply $4a$: but to express the division of ab by cd , we must write $\frac{ab}{cd}$; because a more simple expression cannot be found.

Hence it is evident that Sir Isaac Newton was in the right to call algebra universal arithmetic; because it exhibits all the general and common rules of every kind of arithmetic, in a more clear, concise, and simple method. But it may be asked, why we should have recourse to perplexity? In all arithmetical questions the numbers are expressed; of what use therefore can it be to give them a literal expression? The answer is easy: there are questions far more complicated; and in the solution of these we are obliged to form combinations, of which the number or numbers sought must form a part. We must therefore be possessed of an art, whereby we may represent these combinations without

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out knowing the number sought; and consequently express the numbers by characters not numerical: because it would be very improper and inconvenient to express an unknown number by a numerical character, which we had no reason to expect would be its real value.

ARITHMETICAL, belonging to, or performed by arithmetic.

ARITHMETICAL *Complement of a Logarithm, Sine, Tangent, &c.* the sum or number, which a logarithm, &c. wants of 10,000,000.

ARITHMETICAL *Mean.* See MEAN.

ARITHMETICAL *Progression.* See PROGRESSION.

ARK, ARC, or ARCH. See the Article ARCH.

ARK, in the scripture language, a kind of vessel, made by the command of God himself, for preserving Noah and his family, together with the several species of animals, from the universal deluge. The ancients inform us, that the Egyptians used barks made of bulrushes on the Nile; and that these barks were of an oblong square figure, and so light as to be carried by a single man. There is great reason to think that Noah's ark was made in the form of these Egyptian boats, but of an infinitely larger size. If we reckon the Hebrew cubit at 20 inches and a half, English measure, the length of the ark, must have been 512 feet 6 inches; its breadth, 85 feet 5 inches; its height, 51 feet 3 inches; and its whole capacity, or hollow part of the ark, 229822 feet 4 inches nearly. The covering of the ark had doubtless something of a declivity, in order to carry off the water that fell upon it. The height of it might be divided into four stories, allowing three cubits and a half to the first, seven to the second, eight to the third, and five and a half to the fourth, and leaving the remaining five cubits of the thirty in height for the thickness from top to bottom, and the three bridges or floors of the three last stories.

The number of beasts which must have entered into the ark, is not so great as might be imagined. We are not acquainted with above an hundred and thirty species of four-footed beasts; nor do we know of a greater number of birds; and with regard to reptiles not more than thirty species. We know only six species of beasts larger than an horse. There are very few equal to this creature, and many much less, and which are under the size even of sheep: so that all the four-footed beasts, including three thousand six

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hundred and fifty sheep, which may be supposed necessary for the nourishment of such animals as live on flesh, take up scarce any more room than an hundred and twenty oxen, three thousand seven hundred and thirty sheep, and fourscore wolves. Of birds or fowls few are larger than the swan, and almost all are less. As for reptiles, or creeping animals, their number is not great. They generally are small. Many of them can live in water, and consequently it was unnecessary to bring them into the ark. All the four-footed beasts might have been easily lodged in six and thirty stables; and all the birds in as many voleries; allowing for each stable and volery, five and twenty feet and a half in length, nine and twenty in width, and thirteen and a half in height. There might be more than thirty-one thousand one hundred and seventy-four bushels of fresh water in the keel; which is more than sufficient for four times as many men and beasts to drink in one year, as were in the ark. The granary and magazine, which was in the first story, might contain more provisions than were necessary for the nourishment of all the animals in the ark for one year; whether they lived on hay, fruits, and herbs; or whether there were sheep designed for the food of such animals as live on flesh. Besides the places requisite for the beasts and birds, and their provisions, Noah might spare room in the third story for six and thirty cabins to deposit his household utensils, the instruments of husbandry, grains and seeds to sow the earth with after the deluge. He might make room in it for a kitchen, a hall, four chambers, and a space of about eight and forty cubits in length to walk in. The reader may consult M. le Pelletier's work upon Noah's ark, and that of John Butteon on the same subject.

There are several difficulties proposed with relation to Noah's ark, none of which have yet been satisfactorily solved. One question is, how long time Noah was employed in building it? Interpreters generally believe, that he was an hundred and twenty years; but some allow him only 52 years; some no more than seven or eight, and others still much less. The Mahomedans say he had but two years allowed him for this work. Another question is, what kind of wood is meant by gopher wood? Some think cedar, or box, others cypress, the pine, fir-tree, and the turpentine tree.

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It must be owned, that it is a point which still remains undecided; but if our opinion would be of any weight, we should prefer that which supposes it to mean cypriss. But the greatest difficulty relating to Noah's ark, regards its size and capacity; and how they were able to build a vessel sufficient to contain the men and beasts, besides the provisions necessary for the support of both, during the whole year. To remove these difficulties, it has been necessary to be very particular in enquiring into the length of the cubit mentioned by Moses, into the number of the beasts that were admitted into the ark, as well as into the dimensions of this vast building; and after the nicest examination, computations, and taking the dimensions with the utmost geometrical accuracy, the most learned and able calculators conclude, that if the greatest mathematicians had been consulted, with regard to regulating the proportions of the several apartments in the ark, they could not have done it with more exactness than Moses has done; and the narration in the sacred history, in this particular, is so far from furnishing deists with weapons to attack its authority, that on the contrary, it supplies us with good arguments to confirm it.

ARK *of the Covenant*, among the Jews, a small chest made of beaten gold, wherein were contained the golden pot filled with manna, Aaron's rod, and the tables of the covenant.

ARM, *Brachium*, a part of the human body, terminating at one end in the shoulder, and at the other in the hand. Anatomists divide the arm into two parts, calling only that part the arm included between the shoulder and the elbow; the rest they term the fore-arm. The arm in this acceptation has only one large bone, called the os humeri, or the shoulder-bone. The other part consists of two bones, termed the radius, and the cubitus, or ulna.

ARM, in geography, a branch of the sea, running some distance into the land.

* **ARMADA**, (the Spanish, defeat of, in the reign of Elizabeth the 30th of July, 1588) Elizabeth having learned the particulars of this formidable armament, which was styled the Invincible Armada, took the necessary precautions for giving the Spaniards a warm reception. Having equipped a considerable fleet, she created Charles lord Howard of Effingham lord admiral of England; and he was sent with a strong squadron to the west, where he was joined by Sir Francis Drake, appointed vice admiral. She ordered lord Henry

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Seymour, second son to the duke of Somerset, to cruize along the coast of Flanders, with forty English and Flemish ships, to prevent the prince of Parma from putting to sea with his forces. Twenty thousand men were cantoned along the southern coasts of England; another body of well disciplined troops encamped at Tilbury, near the mouth of the Thames, under the conduct of the earl of Leicester, whom the queen created general in chief of all her forces; and the Lord Hunsdon commanded a third army, amounting to thirty six thousand horse and foot, for the defence of her majesty's person. Arthur lord Gray, Sir Francis Knolles, Sir John Norreys, Sir Richard Bingham, and Sir Roger Williams, men renowned for their valour and experience, were consulted about the management of the war by land. In pursuance of their advice, all the landing-places on the coast were fortified and garrisoned, from Hull to the Land's end, and Milford Haven: the militia of the country was armed, and regulated under proper officers, who received instructions for interrupting the disembarkation of the enemy, wasting the country before them, and amusing them with slight skirmishes and continual alarms, until the army could be assembled at the place, in order to give them battle. The queen imprisoned some suspected papists; sent new instructions to Sir William Fitzwilliams lord deputy of Ireland; and, by her Friends in Scotland, instigated James against the Roman catholics and the Spanish faction. That prince was more afraid than she, of the success of such an invasion, which would have deprived him of his fair succession, and exposed his native kingdom to the arms of a foreign conqueror. The lord Maxwell returning from Spain, landed at Kircudbright where he began to assemble troops, as if he had expected the Spaniards would make a descent in Galloway. James being informed of these practices, marched against him with such expedition, that with difficulty he escaped in a bark; but was pursued, taken, and imprisoned. Alonzo Perez de Guzman, duke of Medina Sidonia, commander of the Spanish Fleet, had sailed from Lisbon on the twenty ninth day of May; but being overtaken by a storm, the ships were dispersed, though in a few days, they re-assembled at Coruna, and in the neighbouring harbours. Effingham, the English admiral, having received an exaggerated account of the damage received by the Spanish navy, set sail towards Spain, with a view to attack
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and destroy them in their harbours; but the wind shifting, he returned to Plymouth, on the supposition that they might chuse this favourable gale to enter the English channel while he was absent. This was really the case: they had probably passed him in a fog; for on the very day after his return to port, being the nineteenth of July, the Spanish fleet was seen off the Lizard, on the coast of Cornwall. The admiral forthwith ordered his ships to be towed out to sea, against a strong breeze that blew in shore; and then he desiered the Armada sailing up the channel in line of battle, like so many lofty castles floating on the bosom of the sea. He allowed them to pass, that he might have the advantage of the wind, and dispatched his brother-in-law Sir Edward Hobby to court for a further supply of men and shipping. Upon this occasion many noblemen and people of fashion, distinguished themselves by fitting out ships at their own expence, and engaging as volunteers in the service of their country. Among these were the Earls of Oxford, Northumberland, and Cumberland, Sir Thomas and Sir Robert Cecil, and the celebrated Sir Walter Raleigh. On the twenty first day of July, the admiral, seconded by Drake, Hawkins, and Forbisher, attacked the rear of the Armada, commanded by John Martinez de Recalde, and maintained the engagement about two hours, pouring in their broad-sides, and tacking about with admirable dexterity. They did not chuse to engage the enemy more closely, because they were greatly inferior to the Spaniards in the number of ships, men, guns, and in weight of metal; nor could they pretend to board such lofty ships, without a manifest disadvantage. Nevertheless, two Spanish Galleons were disabled and taken. On the twenty third day of July, the duke of Medina Sidonia bore down upon the English fleet, and both sides strove for some time to gain the weather-gage; at length the battle began, and was fought with great confusion and various success; though the loss on either side was not considerable. This engagement was followed by a cessation, because the lord admiral could not renew hostilities, until he received a supply of powder and ammunition. On the twenty fifth, a Portuguese galleon was taken, notwithstanding the vigorous efforts of Don Diego, Telles Henriquez, who brought three galleasses to her assistance. On the twenty seventh, the Armada anchored before Calais, and were again attacked by the

English fleet, now reinforced, and amounting to one hundred and forty ships, well manned and provided for action. The Spanish admiral pressed the duke of Parma for a reinforcement of forty flyboats, that he might be the better enabled to deal with the light English frigates; and he did not doubt but by this time the Netherlands forces were embarked for the descent upon England. The duke was not at all prepared to join the Armada. His vessels were leaky, and destitute of provisions; the greater part of his seamen had deserted; the troops were not yet embarked; and the harbours of Dunkirk and Nieuport were blocked up by a squadron of ships belonging to Holland and Zealand. After lord Esingham had cannonaded the Armada for some time, he prepared eight fire-ships; and at midnight sent them, under the conduct of Young and Prowse, into the midst of the enemy, where, being set on fire, they produced universal terror and confusion. The duke of Medina Sidonia ordered his captains to slip their cables, and put to sea with all expedition. They practised this expedient, but with such disorder, that they ran foul of each other in the dark; and their whole navy was filled with tumult and uproar. A large galleass, commanded by Don Hugo de Moncada, having lost her rudder, next day struck upon the sands of Calais, and was, after a very desperate engagement, taken by three English captains, who found on board a great quantity of gold, and delivered the vessel and guns as a perquisite to the governor of Calais. The English fleet taking the advantage of the enemy's confusion, engaged them with great fury, as they endeavoured to re-assemble off Gravelines. The engagement began at four o'clock in the morning, and lasted till six in the evening. The English having the advantage of wind and tide, handled them so roughly, that thirteen of their best ships were either sunk or driven ashore; one of their galleons was taken, and another fell into the hands of the Zealanders. The duke of Medina Sidonia being driven towards the coast of Zealand, held a council of war, in which it was resolved, that, as their ammunition began to fail, their ships had received great damage, and they despaired of being joined by the duke of Parma, they should return to Spain, by sailing round the Orkneys, the Hebrides, and the island of Ireland. Accordingly they proceeded to the northward, and were followed by the English Fleet as far as Flamborough-head,

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head, where they came up with the fugitives; and the Spanish admiral, intimidated by the prospect of a long and dangerous voyage, would have surrendered, had he been attacked by the English navy. But, a council being called by lord Effingham to regulate the particulars of the engagement, it appeared upon enquiry that their ammunition was almost exhausted; so that they were obliged to let the Spanish fleet proceed on their voyage, while they returned to the Downs. That very night the Armada was terribly shattered in a storm. Seventeen of the ships, having five thousand men on board, were afterwards cast away upon the western Isles, and the coast of Ireland. Some were wrecked on the rocks of Norway, and many perished by fire, and other accidents. Seven hundred Spaniards landing in Scotland, were treated with humanity by James; and, with the consent of Elizabeth, sent over to the duke of Parma in the Netherlands; but those who got ashore in Ireland, were butchered by the natives, or the lord deputy. Of the whole Armada, three and fifty ships only returned to Spain, in a miserable condition; and the commanders imputed their ill success to their not being joined by the duke of Parma, and their being too severely restricted to the letter of their instructions.

ARMADILLO, in natural history, an animal resembling a hedge-hog, and almost of the same size. His head, body, and tail, are covered with a shield of a bony substance, and very curiously contrived with most beautiful scales. The head is like a hog's, with a sharp snout: it has little eyes sunk deep in the head, and a pointed narrow tongue. The ears are naked, brown, and short: the teeth are of a middle size, and eighteen in each jaw. The feet resemble hands, with five fingers, and roundish nails. He roots up the ground with his snout, like a hog; and is tinged all over with a reddish colour. The tail at the root is near four inches thick; but grows less gradually to the end, which terminates in a point. He lives upon melons, potatoes, and other roots; and will eat flesh when he can get it. He generally lies hid in the ground, and sometimes will frequent water and watery places, where he feeds upon worms, small fish, and water insects. Sometimes he will eat ants, apples, and the berries of certain trees. There are three sorts of these Animals mentioned by naturalists, viz. that of the Caribbee Islands, the African, and the weasel-headed, or the

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Tatu; but they do not differ very much from one another. See plate V. fig. 5.

* **ARMENIA**, a country of Asia, partly subject to the Turks, and partly to the Persians. It is divided into the Great and Small. Great Armenia has Georgia on the north, from which it is separated by high mountains. The river Euphrates on the west; Diarbeker, Curdistan, and Aderbajan, on the south; and Shirvan on the east. The chief towns in that part of Armenia belonging to Turkey, are, Arzum the capital, near the springs of the Euphrates, and a great thoroughfare for the caravans between Turkey and Persia; Kars, a strong city, Bayazid, a republic of Hurds, near Mount Ararat; Baha, another republic of the same; and Van or Wan, on the lake Van, the head of a government of the same name, with other towns of less note. That part of Armenia which is subject to Persia, is chiefly contained in the province of Aran, in which are several fine towns, as Erivan or Rivan, the capital of the whole. Ganjals, one of the finest cities in Persia, Kapan on the south side, near the Aras; besides Nakchivan, Astabad, Julfa, Ordabad, Baylakan or Pilkani, on the Aras; Berdah and Shilkah, on the Kur.

The country, in general, is full of mountains and vallies, lakes and rivers, particularly the country about Erivan is admirably fine, being full of rivulets, which render it extremely fruitful. Besides great quantities of all sorts of grain, here are fields of a prodigious extent covered with tobacco, which came originally from America; the rest of the country produces rice, cotton, flax, melons, and grapes; in short, there is nothing wanting but olives, which shews that the ark could not rest on mount Ararat, because the dove brought an olive-branch in her mouth, and this tree never leaves a place where it once grew. The Armenians are an honest, civil, polite people; but not fond of fighting; for they scarce trouble themselves about any thing else but trade, which they carry on in most parts of the world. The religion of the Armenians is the Christian, of the Eurychian sect, that is, they own but one nature in Jesus Christ; and when they speak of the hypostatical union, they say, that he is perfect God and perfect man without mixture.

The Armenians have seven sacraments, baptism, confirmation, penance, the eucharist, extreme unction, orders, and matrimony. In baptism, the child is plunged three times into the water, and

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the same form of words that is used with us, is repeated every time. The women do not go to church till forty days after their delivery; and they observe many Jewish customs. At the communion, to which infants of two or three months old are admitted, the priests give a piece of the consecrated host, soaked in the consecrated wine. The Armenians seem to place the chief part of their religion in fastings and abstinences; and among the clergy, the higher the degree, the lower they must live; inasmuch that it is said, the archbishops live on nothing but pulse.

ARMILLA-MEMBROSA, in anatomy, that circular ligament which comprehends all the tendons belonging to the whole hand within a circle, in the region of the carpus.

ARMILLARY, in a general sense, implies something composed of rings or circles.

The word is derived from *armilla*, a bracelet.

ARMILLARY Sphere, an artificial sphere composed of a number of circles of the mundane sphere, put together in their natural order, to ease and assist the imagination, in conceiving the constitution of the heavens, and the motions of the celestial bodies. See plate IV. fig. 2. The armillary sphere revolves upon its axis within a silvered horizon, which is divided into degrees, and moveable every way upon a brass supporter. The other parts are the equinoctial, zodiac, meridian, the two tropics, and the two polar circles.

ARMISTICE, in military affairs, a temporary truce, or a cessation of arms for a very short space of time.

The word is compounded of *arma*, arms, and *sto*, to stand, or stop.

ARMOSIN, a kind of silk stuff, manufactured in the East-Indies, at Lyons in France, and at Lucca in Italy.

ARMORIAL, relating to arms, or coats of arms.

ARMORY, a magazine of arms, or a place where military habiliments are deposited, that they may be ready for use.

ARMOUR, such habiliments as serve to defend the body from wounds, especially those given by darts, swords, lances, &c.

ARMOURER, one who makes or deals in arms or armour.

ARMS, *Arma*, in a general sense, all kinds of weapons, whether offensive or defensive.

ARMS, in a legal sense, extend to any thing a person wears for his own defence, or takes in his hand, and uses in anger, to strike or throw at another,

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ARMS, or **ARMORIES**, in heraldry, marks of honour borne upon shields, banners, and coats, to distinguish states, families, and persons.

Charged ARMS, such as retain their ancient integrity, with the addition of some new honourable bearing.

Canting or Vocal ARMS, those in which there are some figures alluding to the name of the family.

Full or Intire ARMS, such as retain their primitive purity, without any alterations or abatements.

ARMY, a large number of soldiers, consisting of horse and foot, completely armed, and provided with artillery, ammunition, &c. under the command of one general, with proper officers under him. An army is composed of squadrons and battalions, and is usually divided into three corps, and formed into three lines. The first is called the van-guard, the second the main body, and the third the rear-guard.

* **ARNO**, a river of Tuscany, which rises in the Apennine mountains, runs through Florence and Pisa, and falls into the Mediterranean a few leagues below Pisa. The valley through which it runs is exceeding pleasant, and abounds with all manner of fruits. The late duke of Dorset wrote an elegant little sonnet on Arno's Vale, or Valley.

AROMATIC, an epithet applied to such plants and other bodies as yield a fine fragrant smell, and have a warm spicy taste.

ARPENT, a term sometimes used to denote an acre.

Battle ARRAY, the order or disposition of an army drawn up to engage the enemy.

ARREARS, the remainder of a sum due, or money remaining in the hands of an accountant. It likewise signifies the money due for rent, wages, &c.

ARREST, the apprehending and seizing a person, to oblige him to be obedient to the law; which in all cases, except treason, felony, or breach of the peace, must be done by virtue of a precept out of some court. See **WRIT**.

ARREST of Judgment, the assigning just reason why judgment should not pass, as want of notice of the trial; a material defect in the pleading, when the record differs from the deed impleaded; when persons are mis-named; where more is given by the verdict than is laid in the declaration, &c. This may be done either in criminal or civil cases.

ARRESTS,

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ARRESTS, in farriery, mangy tumours between the ham and the paster of a horse's hind legs.

ARRIERE, the hinder or posterior part of any thing. See **REAR**.

ARROW, a missive weapon, sharp-pointed and barbed. See **Bow**.

ARROW, among surveyors, a small stick generally shod with iron, to stick into the ground at the end of the chain.

ARSCHIN, in commerce, a long measure used in China to measure stuffs. Four arschins make three English yards.

ARSENIC, a poisonous mineral substance, frequently found mixed with other matters.

The chemists have formed various conjectures about the nature of this singular concrete; but have not been able to determine what it really is, or to what class of bodies it belongs. Stahl supposes it to be of a saline nature. In some of its states, it apparently possesses properties attributed to salts alone; but in other states it is as obviously metallic.

Arsenic is employed by the dyers, as an ingredient in the compositions of scarlet and other fine reds; by the girdlers and pin-makers, for whitening their brads or copper; by the goldsmiths, for enamelling; by the glass-makers, for promoting the fusion of the frit, and the clearness and transparency of the glass; by the porcelain-makers, in white glazings; by the preparers of compound metals, for communicating a silver whiteness to copper; by the assayers, it is used in the form of glass, for promoting the scorification of refractory ores, which participate of tin and antimony, and which will not work off, but run into lumps in the cupel.

Arsenic is used also in solders, or for uniting iron with tin, in some places in making tinned iron plates. Arsenic is a most violent poison to all animals; unless the wolf should be an exception, who is said to be only purged by it. The utmost caution is therefore necessary, in all operations upon arsenic, to avoid its fumes: it is on account of the danger attending its operations that this mineral has hitherto been so little examined by the chemists. The destroying of rats, or other domestic animals, by means of arsenic, is full of danger; the operation of the poison being such, that great part of it is discharged, and the animal induced to drink: hence foods, liquors, and the provender of cattle, have too often received a poisonous taint. If we cannot catch those animals, we may nevertheless

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be cleared from them by much safer means than the use of arsenic: fresh nightshade is their enemy.

With regard to the effects of arsenic in the human body; a nausea, sickness, and reaching commonly ensue in about half an hour after taking it, followed by violent vomiting, hiccups, and pains in the stomach and bowels: convulsions and palsies of the limbs presently succeed, with intense heats, cold sweats, palpitations of the heart, extreme anxiety, restlessness, prostration of strength, thirst, and dryness of the mouth and throat, loss of reason, and at last death. Several substances have been produced as antidotes to this poison. Those who imagine arsenic to be an alkali, recommend acids; and those who imagine it a corrosive acid, direct alkalies for counteracting its effects: but arsenic is apparently neither one nor the other. If rock crystal, or bezoar, or the roots of the elder-tree, by some strongly recommended, have seemed to do service where arsenic had been taken; it was not on those ingredients, but on the oils or fats used along with them, that the good effects of the medicine depended. Oils, fats, warm fat broths, fresh butter, milk, taken plentifully and repeatedly, are the only antidotes, both for obtunding the force of the arsenic, and promoting its discharge by vomit. If the vomiting does not freely succeed by the liberal use of these kinds of substances, some mild emetic must be added; the expulsion of the poison being a principal point. The more threatening symptoms being thus removed, oily clysters, and a gentle laxative, are necessary, to obtund and evacuate such part of the arsenic as may have passed into the intestines; after which, the strength is to be recruited by proper analeptics.

* Cases frequently happen in which we are called upon to determine whether a particular substance be arsenic or not; as when powdery matters are found in the stomach of those who are suspected to have died by poison. Arsenic, in a solid form, may be distinguished by its yielding, in the fire, white fumes, and a garlic smell; and by its whitening copper. This last trial is most commodiously made, by placing a little of the powder between two clean polished copper-plates, binding the plates firmly together with wire, closing the juncture all round with a good lute, and then heating them red-hot. We may try also whether any reguline or semimetallic matter is obtainable, by means of tartar and fuel.

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The principal preparations of arsenic are, fixed arsenic, and the arsenical magnet. Fixed arsenic is made by gradually injecting powdered arsenic into melted nitre, commonly in the proportion of one part of the former to two of the latter. When the ebullition is over, the crucible is covered, the matter kept melted for a little time with a strong fire, and afterwards edulcorated with water. The arsenical magnet is a mixture of equal parts of pure white arsenic, sulphur, and antimony, reduced separately into fine powder; then mixed, put into a glass body set in sand in a crucible, and urged with a very gradual fire, till the matter is melted into a red vitreous mass resembling a deep garnet or ruby. We must be cautious in handling this arsenical glass, as a wound received from it may be dangerous.

Pure crystalline white arsenic is never found native in the earth. A powdery white arsenic is now and then met with in some of the Bohemian and Saxon mines; though even this seems to be not a natural arsenic, but to have been separated and sublimed from the ores, by the wood fires made in the mines for bursting the masses of ore. It is observable, that Saxony, of all countries in the world, is the richest in arsenical ores; and that the richest silver ores abound with arsenic. *Newmann's Chemistry.*

ARSMART, in botany, the name of several species of perficaria. See **PERSICARIA**.

ART, *Ars*, a system of rules serving to facilitate the performance of certain actions; in which sense it stands opposed to science, or a system of speculative principles.

Arts are usually divided into liberal and mechanical; the former comprehending poetry, painting, sculpture, architecture, &c. and the latter the whole body of mechanical trades, as carpentry, masonry, turnery, &c.

ART and PART, in the law of Scotland, is applied to an accomplice.

ARTEMESIA, mugwort, in botany, the name of a plant, which is perennial, grows wild in the fields and waste grounds, and flowers in June. This plant has been chiefly recommended for promoting the uterine evacuations, and abating hysterical spasms; for which purpose infusions of it have been drank as tea, and used as a bath. It appears to be one of the mildest of the substances made use of in such intentions; and may perhaps

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be of service in some cases, where medicines of more activity would be improper.

* **ARTEMISIA**, queen of Caria, the sister and wife of Mausoleus, immortalized herself by the honours she paid to the memory of her husband, by building for him, at Halicarnassus, a tomb called the Mausoleum, which was one of the seven wonders of the world, from which the title of Mausoleum was afterwards given to all tombs remarkable for their magnificence. Artemisia survived her husband about two years, and died of grief about the end of the one hundredth and sixth Olympiad, three hundred and fifty one years before the Christian æra. Artemisia's grief did not, however, prevent her attending to the safety of her dominions. The Rhodians had formed the design of dethroning her, upon which she carried on a war against them, and having at length besieged and taken their city, erected within the walls two brazen statues, one representing Rhodes dressed in the habit of a slave, and the other of Artemisia branding her with a hot iron.

ARTERIAL, in anatomy, any thing belonging to, or that performs the office of, an artery.

ARTERIAL Vein, in anatomy, a name given to the pulmonary artery.

ARTERIOTOMY, the opening an artery in order to procure an evacuation of blood.

The term is compounded of two Greek words signifying an artery, and to cut.

ARTERY, in anatomy, a conical tube or canal, which conveys the blood from the heart to all parts of the body. The arteries of the human body are, strictly speaking, only two, namely, the aorta, and the pulmonary artery; all the other arteries, tho' distinguished by proper names, being only branches of these two. The ascending aorta, which arises immediately from the left ventricle of the heart, presently after gives two arteries, called coronary ones, to the heart itself. A little above this it is divided into three ascending branches, from which are formed the two carotids, and the two subclavians; and from these last proceed the muscularis colli, the external scapular artery, the superior intercostals, the mediastinal artery, the superior diaphragmatic artery, the mammary artery, and the axillary arteries: all which are subdivided into lesser branches.

From the descending trunk of the aorta, proceed in the following order, the bronchil

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chil artery, the inferior intercostals, the arteries of the œsophagus, the interior diaphragmatics, the cœliac, superior mesenteric, the renal or emulgent arteries, the sacra, and two iliacs. These are the main branches sent out from the descending aorta, each of which is again subdivided into many lesser branches.

Rough ARTERY, or aspera arteria. See ASPERA ARTERIA.

ARTHANITA, fowbread, in botany, a low plant, without any other stalk than the slender pedicles of the leaves and flowers. It is perennial, a native of the southern parts of Europe, and cultivated in some of our gardens. The fresh roots of arthanita have a nauseous, acrid, biting taste, and no remarkable smell: by drying, their acrimony is greatly abated; by long keeping, it is almost destroyed; though after they have lost so much as to make very little impression on the organs of taste, they still betray, when taken internally, a great degree of irritating power. Dried and powdered, they have been given in doses of a drachm, and found to operate as a strong, inflammatory, yet slow cathartic. The juice is said to purge strongly when applied externally to the belly: and the juice or bruised root to be of great efficacy for softening and dissolving indolent and scrophulous tumours. The flowers are of a different nature, having a moderately strong and very pleasant smell, and little other than a mucilaginous taste: they have been used medicinally, and the use of the roots is now, among us, in great measure laid aside. *Lewis's History of the Materia Medica.*

ARTHRITIS, in medicine, a disease, well known by the appellation of the gout. See GOUT.

The word is derived from the Greek, and signifies a joint; the chief seat of that distemper being in the joints.

* ARTHUR, duke of Brittany, son of Geoffrey Plantagenet, who was the fourth son of Henry II. king of England, and of Constantia, daughter of Conan, duke of Brittany, and earl of Richmond, was born after his father's death, on the 31st of March, 1187. In right of his mother he was heir apparent to the dukedom of Brittany, and to many lordships; and king Richard had so great a respect to the right of succession, that in the year 1190, in a letter to the pope, he declared his nephew Arthur his heir, in case he died without issue by his queen. Yet, in 1199, when he was mortally wounded before the

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castle of Chalus, he devised to his brother John the kingdom of England, and all his other dominions; on which he was declared king, while Arthur was solemnly received by the French king, who took him under his protection. After many acts of hostility on both sides, Arthur was taken prisoner by king John in 1202, and confined in the castle of Falaise, under the custody of Hubert, where the king went to him, and treated him very gently; but the young prince, who was then scarcely fifteen, insisting that he was heir to the crown of England, the king was so enraged, that he caused him to be removed to the castle of Rouen, where he was confined more closely than ever, and resolved to have his eyes put out, and farther, deprived of the power of getting children: however he was dissuaded from this barbarous design, either by his chamberlain Hubert, or by his mother queen Eleanor; but it has been always strongly suspected that he caused him to be murdered, for presently duke Arthur disappeared, and was never heard of afterwards.

* ARTHUR, king of the Britons, is said to have been the son of Uther Pendragon, king of Britain, and to have been born in 501. His life is a continued scene of wonders. It is said that he killed four hundred and seventy Saxons with his own hand in one battle; and having subdued many mighty nations, and instituted the order of the Knights of the Round Table, died A. D. 542.

ARTICHOKE, *Cynara*, in botany, a well-known plant, cultivated in gardens. It requires, says Miller, a rich, deep, and moist soil, thoroughly dug several times over, and mixed with plenty of well rotted dung, to the depth of at least three feet; for the deeper the mould is, the less watering they will require in the summer, and the larger and better flavoured their fruit will be in autumn. They may be raised from seeds: but the usual and most expeditious way of propagating them is by slips, or suckers, taken from the old roots in February or March, or as soon as the hard frosts are over. These suckers should be taken off with some fibres to them; and if they are planted in a well prepared soil, like the abovementioned, they will yield the next autumn.

The time for taking off these suckers is also the proper season for dressing the old stocks; which is performed thus: After all the earth has been removed from about the stock, down to below the part

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part from which the young shoots are produced, two, or at most three, of the clearest, straightest, and most promising of these shoots, issuing from the under part of the stock, are chosen for a crop. These are far preferable to the strong thick shoots that generally spring up from the crown of the roots, with woody stems, which never produce good or regularly scaled fruit. The gardener then (having previously taken off the suckers intended for planting elsewhere, in doing of which care must be taken not to injure the plants intended to remain) forces off, with his thumb, all the other buds and young shoots, close up to the head of the stock; separates the young plants that are left, as far asunder as he can, without breaking them; draws the earth up to them with a spade; presses it down close around them with his hands; and then pulls off the tops of the leaves which hang down.

Toward the end of April, or beginning of May, when the plants begin to fruit, all the young shoots, produced from their roots or stems since the dressing, must be pulled up or cut off, so as to leave only the principal head, which will by that means bear a fine large fruit. When the artichokes are fit to gather, their stems must be cut down close to the ground, in order that the stocks may make strong fresh shoots before the end of October, which is the usual season for earthing them up, or as the gardeners term it, landing them: though this may be deferred till any time in December, if the weather proves mild.

This earthing of them consists in cutting off all the young shoots quite close to the ground, then digging a trench between each row, and covering the stocks with the earth thrown up, in such manner, that they may be, as nearly as possible, under the middle of the ridge.

The plants, thus earthed up, will not require any farther care before the end of February, or beginning of March, by which time they will have grown through the ridge of mould; and this, if the weather be proper, is the season for dressing their roots as before directed.

Though the stocks of artichokes will last ten, or even fifteen years, in a rich and deep soil; yet, as they are great impoverishers of the ground, their fruit will dwindle, so as to render it most advisable to renew the whole plantation every fourth or fifth year, or, perhaps, rather every second or third, by slips or suckers, which should be planted in rows as straight as possible, and at the distance of two

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feet from each other, four inches deep, with the earth closed very fast to their roots, and if the season proves very dry, they should be watered twice or thrice a week, till they have taken good root.

If any of the artichokes, thus planted in the spring, should not produce fruit in the autumn, they may be made to yield it in the winter, or early the next spring, by tying up their leaves at the time of earthing up their roots, heaping up mould around till only their tops are seen, and then covering those tops with a little straw, or peas haulm, to defend them from frost.

The kitchen gardeners near London, who endeavour to make the most of every inch of their high-rated land, generally plant their rows of artichokes nine or ten feet asunder; and, besides sowing between them radishes or spinach, they plant two rows of cauliflowers, at the distance of two feet and a half from each other in the rows, and of four feet from row to row; so that full five feet are allowed for the artichokes. In May, when the crop of radishes or spinach is taken off, they sow along the middle of the space between the two rows of cauliflowers, a row of cucumbers for pickling, at the distance of every three feet; and between the cauliflowers and the artichokes they plant, for winter use, a row of cabbages or savoys, which have room enough to grow after the cauliflowers and artichokes are taken off. Thus the ground is fully cropped during the whole season.

A moist rich soil always yields the largest and best artichokes; but if it be very moist, the roots will not live through the winter.

The two sorts of artichokes, commonly cultivated in this country, are the globe and the French. The former, which has by far the most fleshy leaves, the thickest bottom, and the best taste, is deservedly preferred. It is also the largest. The scales of this sort are brown, and turn inward. The French artichoke is more conical, its scales are narrower, of a greener colour, and frequently turned outward, and it has a disagreeable perfumed flavour.

The bottoms of artichokes are good for many culinary uses. The way to preserve them all the winter is, to separate them from the leaves, parboil them, and hang them up in a dry place, strung on packthread, with a clean piece of paper between every bottom, to prevent their touching one another. They are likewise said to be very good pickled.

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M. de Chateauvieux has raised most excellent artichokes in the open field, without dunging the ground at all, or even watering the plants; but solely by a judicious execution of the principles of the new husbandry: so great are the benefits which accrue from a thorough stirring of the earth! Artichokes which he planted at the end of May, produced in September their first fruits, which were, in general, from twelve to fifteen inches in circumference. Their leaves covered entirely buds six feet wide, in which they were planted. *Mills's Husbandry.*

Jerusalem ARTICHOKE, the root of a species of the sun-flower of the perennial kind, and propagated in some gardens for the use of the kitchen. It is a very agreeably tasted root, but watery and windy, and therefore generally disregarded. It is propagated by planting out the small roots, or even pieces of the larger, which have buds to them, in the spring or autumn. They must be allowed a very considerable distance, for they spread immoderately, and multiply very quick.

The autumn following, when their stems decay, the roots may be taken up for use. It is an unfightly plant, though very tall, and therefore placed in the obscure corners of a garden. *Miller's Gardener's Diet.*

ARTICLE, a small part of a book, writing, account, treaty, or the like.

ARTICLE, in anatomy, the juncture of two bones designed for motion.

ARTICLE, in arithmetic, denotes any number that can be divided into ten equal parts, as 10, 20, 30, &c.

ARTICLE, in grammar, a particle used in most languages for expressing the several cases and genders of nouns, where different terminations are wanting to supply that office. Articles are of the utmost use in a language, as by their assistance general appellations are rendered particular. We are surrounded with such an amazing multiplicity of objects, that it would be impossible to give each a proper name, and consequently general terms became necessary. But general terms could never answer the intention of conveying our ideas to each other by words or writing, unless we had some method of confining those general terms to particular objects. This is the office of the article; and this it fully performs.

ARTICLE of Faith, a point of religious doctrine, allowed and received by some church, as having been revealed from heaven.

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ARTICLES of Religion, the thirty-nine heads of the protestant faith, drawn up by the bishops Crammer, and Ridley, and published by regal authority in the reign of Edward the sixth.

There has lately been an attempt made to annul the whole, or the major part of these articles; which attempt has not yet been crowned with success, though the promoters of it are numerous and powerful.

ARTICULATE Sounds, such as express the letters, syllables, or words of any alphabet or language; such as are formed by the human voice.

ARTICULATED, furnished with, or consisting of, joints.

ARTICULATION, in anatomy, implies the juncture of two bones intended for motion.

Articulation is of two kinds, diarthrosis and synarthrosis; the former being that which admits of a manifest motion, and the latter that which allows only of an obscure motion.

ARTIFICER, one whose employment it is to manufacture any kind of commodity, as iron, brass, wood, wool, linen, &c. such as smiths, braziers, carpenters, weavers, spinners, &c.

ARTIFICIAL, made, fashioned, or produced by art, in contradistinction to the productions of nature.

ARTILLERY, ordnance of all sorts, with their various appurtenances; as cannons, mortars, petards, musquets, carbines, &c. See CANNON, MORTAR, &c.

ARTILLERY-PARK, a place generally in the rear of an army for encamping the artillery.

The artillery is drawn up in lines, of which one is formed by the ordnance: the ammunition waggons make two or three lines, sixty paces behind the ordnance, and thirty distant from one another: the pontoons and tumbrils compose the last line. The whole is surrounded with a rope, which forms the park; the gunners and matrosses encamp on the flanks; and the bombardiers, pontoon-men, and artificers in the rear.

Train of ARTILLERY, a certain number of pieces of ordnance mounted on carriages, with all their furniture, and every thing necessary for marching.

ARTILLERY-COMPANY, a band of infantry, consisting of six hundred men, forming part of the militia or city guard of London.

ARTIST, a person skilled in some art.

ARVAL BROTHERS, *Arvales fratres*, in

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In antiquity, a college of twelve priests, instituted by Romulus, who presided over the ambervalia, or sacrifices annually offered to Bacchus and Ceres.

They held their assemblies in the temple of Concord, and wore on their heads a crown composed of the ears of corn, tied together with a white ribbon. Some add, that they were entrusted with the authority of determining the limits of lands and inheritances.

ARUM, wake-robin, or cuckow-pint, in botany, a low perennial plant, growing wild under hedges and by the sides of banks. Arum root, newly dried and powdered, is given in doses of a scruple and upwards, for stimulating the solids, attenuating viscid juices, and promoting the natural secretions; in cold, languid, phlegmatic habits; against weakness and relaxations of the stomach, and catarrhus and rheumatic disorders. It has been generally given in conjunction with other materials, to some of which the effects of the compound may be in great part ascribed: thus in the official powders of arum, sixteen grains of the dry root are accompanied with eight grains of the pungent roots of pimpinella, the same quantity of those of the yellow water-flag, (or of *calamus aromaticus*) four grains of cinnamon, (or six of *canella alba*) and two grains of salt of wormwood, (or of vitriolated tartar) with four grains of crabs-eyes. In the medicine recommended by Sydenham against rheumatisms, the acrid antiscorbutic herbs are largely joined to it.

Though spirituous liquors are incapable of dissolving or extracting the active matter of the arum, they seem nevertheless, when given along with the dried root as a vehicle, to promote its action. Juncker observes, that a drachm of the powder, taken with a spoonful of brandy, procures a very copious sweat, even in persons little disposed to that evacuation; while the powder, by itself, has no such effect. *Lewis's History of the Materia Medica.*

ARUNDELIAN Marbles. See **MARBLE.**

ARUSPICES, in antiquity, an order of priests among the Romans, that pretended to foretel future events, by inspecting the intrails of beasts killed in sacrifices.

ASA, or **Assa**, in the materia medica, an epithet applied to two very different substances, called *asa-dulcis*, and *asa-fetida*.

ASA-DULCIS, the same with benzoin. See **BENZOIN.**

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ASA-FOETIDA, a kind of gum, of a very offensive smell, produced by a plant common in some parts of Persia.

Kæmpfer is the author to whom we owe the true account of it. This is given in his *Amœnitates Exoticæ*, where he describes it fully and accurately, under the name of *umbellifera levisico affinis foliis instar prœniz ramosis, caule pleno maximo, semine foliaceo nudo solitario brancæ urinz sive pastinachæ simili radice asam fetidam fundente*. The Persians call both the plant and the juice *hingesh*; and the Indians, *hiing*; but the more accurate in both countries call the plant *hingesh*, and the juice or gum *hiing*.

The root within it is perfectly white, and full of white, milky, and stinking juice, which, when collected and dried, is what the Persians call *hiing*, and the Europeans *asa-fetida*.

It grows in Persia, but there only in two places, at least in those only in any great plenty. These are the mountains about Heraat, and the province of Laar. In these places it abounds with juice, and yields the gum in great plenty; when found elsewhere, it yields very little. The leaves in these places are of a horrible, offensive smell, and no animal will touch them: but the people of the town of Disgaum affirm, that, in the country beyond them, the plant loses much of its bad smell, and that the goats feed very greedily on the leaves, and grow fat upon the diet. It is very singular in this plant, that it seldom flowers, sometimes not till its twentieth, thirtieth, or even fortieth year; during all this time the root is increasing in size, and, consequently, it sometimes grows to an enormous bulk: roots of it have been seen of the thickness of a man's thigh, and of a yard and a half in length; those of the thickness of one's arm are frequent. When it sends forth a stalk, and has ripened its seed, it perishes. The ancients made a distinction in their silphium, as it was produced from the stalk, or from the root of the plant; but, at this time, all that we have is obtained from the root. They never make incisions in roots of less than four or five years standing; and they always find, that the older and larger the root, the more plentifully the juice flows.

The most strongly scented *asa-fetida* is always esteemed the best; and Kæmpfer observes, that it is so much stronger, when fresh, than when kept and imported into Europe, that a drachm of it has more scent than an hundred weight of what our druggists keep.

It is by much the strongest of the deobstruent warm fetid gums; and is given not only against hysterical complaints, flatulent colics, and obstructions of the breast, but in most nervous disorders, in which it frequently acts as an antispasmodic, and an anodyne: in some cases musk, and in others opium, are usefully joined with it. Hoffman recommends it as one of the most powerful anthelmintics hitherto known. It is most commodiously taken in the form of pills, from a few grains to a scruple or half a drachm. It loses both its smell and strength with age; a circumstance necessary to be attended to in proportioning the doses necessary to be given in order to procure the intended effect.

* **ASAPH (St.)** a city and bishop's see, in Flintshire, on which account it is taken notice of: it is so poor and wretched a place it would not otherwise be worth mentioning. It has a market on Saturdays; and four fairs, on Easter-Tuesday, July 15, October, and December 26, for cattle. It is two hundred and twelve miles north-west of London, and twenty-four, west-north-west of Chester, long. 3 25, W. lat. 53. 18. N.

ASARUM, asarabacca, in botany, a low plant without stalks. It is perennial and ever-green, a native of the southern parts of Europe and the warmer climates, and raised here in gardens. The dried roots have been generally brought from the Levant; those of our own growth being supposed of weaker virtue. The roots given in substance, in doses of a scruple or more, prove strongly emetic and cathartic. The leaves have the same effect, but their dose or degree of strength has not been precisely determined; some say they are of more activity than the roots. Its principal use among us is as an errhine. The root is one of the strongest of the vegetable substances commonly employed in this intention: a grain or two snuffed up the nose, procure a large evacuation of mucus, both from the mouth and nostrils, without provoking sneezing, like the white hellebore root, or discovering any remarkable irritation. Geoffroy relates, that after snuffing up a dose of this errhine, he has observed the salutary discharge to continue for three days successively, and that he has known a paralysis of the mouth and tongue cured by one dose. He recommends this medicine in stubborn disorders of the head proceeding from viscid matters, in palsies, and in soporific distempers. During its operation the patient must carefully avoid the cold, which is apt to produce pustules, inflammations, and

swellings of the face, and sometimes more alarming symptoms. This herb is the principal ingredient in the cephalic, or sternutatory powders of the shops: some take equal parts of dried asarum, and marjoram leaves; others equal parts of the dried leaves of asarum, marjoram, and marum syriacum, and dried lavender flowers. The empirical herb snuffs have likewise the leaves of asarum for their basis; but often mixed with ingredients of a more dangerous nature.

ASCARIDES, in medicine, a species of worms, very slender, found in the intestinum rectum, chiefly of children, and frequently voided with the feces. They often adhere to the fundament, and are sometimes even pendent from it.

ASCENDANT, or **ASCENDING Line**, in genealogy, is understood of ancestors, or such relations as are nearer the root of the family.

ASCENDANT, in astrology, the horoscope, or that degree of the equator which is rising above the horizon in the east, at the time of the birth of any person.

ASCENDING, in astronomy, is applied to such celestial objects as are rising above the horizon, in any parallel of the equator.

ASCENDING Latitude of a Planet, the latitude of a planet moving towards the north-pole.

ASCENDING Node, that point of a planet's orbit where it passes the ecliptic, in its motion towards the north. See **Node**.

ASCENDING Signs, among astrologers, those rising from the nadir towards the zenith.

ASCENDING Vessels, in anatomy, those which carry the blood upwards, as the aorta ascendens, and vena cava ascendens.

ASCENSION, in a general sense, a moving upwards.

ASCENSION, in astronomy, is either right or oblique.

Right ASCENSION of the sun, or of a star, is the arch of the equinoctial, intercepted between the vernal equinoctial point, and the meridian; that the sun or star appears in.

The reason of thus referring it to the meridian, is, because that is always at right angles to the equinoctial; whereas the horizon is only so in a right or direct sphere.

The right ascension stands opposed to the right descension. Two fixed stars, which have the same right ascension, i. e.

are in the same meridian, rise at the same time in a right sphere. If they be not in the same meridian, the difference between the time when they rise is the precise difference of their right ascension. In an oblique sphere, where the horizon cuts all the meridians obliquely, different points of the meridian never rise or set together; so that two stars on the same meridian never rise or set at the same time, and the more oblique this sphere is, the greater is the interval of time between them. To find the right ascension of the sun, stars, &c. trigonometrically, say, As radius is to the cosine of the sun's greatest declination, so is the tangent of the sun's longitude from Aries, or Libra, to the tangent of right ascension. See *GLOBE*.

Oblique ASCENSION, an arch of the equinoctial intercepted between the vernal equinoctial point, and that point of the equinoctial which rises with the sun or star. In order to find the oblique ascension, we must first find the ascensional difference.

ASCENSIONAL Difference, the difference between the right and oblique ascension of the same point on the surface of the sphere, or an arch of the equator intercepted between the points of right and oblique ascension.

To find the ascensional difference of the sun, stars, &c. trigonometrically, say, As the tangent of the complement of the latitude is to radius, so is the tangent of the declination to the sine of the ascensional difference, which being found must be added to the right ascension, if the declination and latitude be of different denominations; that is, one north and the other south: but if of the same denomination, that is, both north or both south, subtracted from the right ascension, so will the sum or remainder be the oblique ascension required.

The ascensional difference is always equal to the excess or defect of the semi-solar day, above or under six hours; and, consequently, if (according as the case requires) it be reduced into time, by allowing 15° for one hour, &c. and added to, or subtracted from, six hours, we shall have the length of the day and night, and thence the true time of the sun's rising and setting. And because, when the sun is in the equinoctial, or that point where the ecliptic, equinoctial, horizon, and prime vertical, intersect each other, as he rises and sets exactly at six o'clock; hence, if the sun rises before he arrives at the prime vertical, or six o'clock hour circle, he will rise before six of the clock; and,

consequently, we must add the ascensional difference to six hours, to obtain the length of the semi-solar day; or to twelve hours, to obtain the length of the solar day, which will always happen in north latitude, when the sun hath north declination, and in south latitude, when he has south declination: but if he does not rise till he has passed the prime vertical, we must subtract the ascensional difference from six hours, to find the length of the semi-solar day, which will always happen in north latitude, when he has south declination, and in south latitude, when he has north declination.

To find the oblique ascension, and ascensional difference, mechanically, by the globe. See *GLOBE*.

ASCENT, in a general sense, implies the motion of a body upwards.

ASCENT of Fluids. See *FLUID* and *ATTRACTION*.

ASCENT of Vapours. Why vapours are raised by heat is no inconsiderable question. And, among other things, we do not improperly suppose in these vapours insensible bubbles, consisting of a pellicle of water and included air. Such a bubble, therefore, being given, but which may contain air rarer than the circumambient, it is possible that the rarity of the included air may have greater force than the weight of the including pellicle of water: and therefore, that the entire bubble may be lighter than circumambient air of equal bulk, whereby the bubble, by the laws of hydrostatics, will ascend in the same manner as a close vessel of iron full of air would in water, if in proportion to its weight it have a sufficient capacity; nor is the elastic force of the ambient air of greater force in this case than the gravity of a column of air; because the elastic force in each part arises from the gravity of the column. But here will arise a great difficulty, namely, that the circumambient air less rare than the included air seems, by its elastic force, as if it would compress the bubble; and thus the included air will become of a density equal to that of the circumambient air. We are here, therefore, to observe, that there is a two-fold force in air, whereby it dilates itself, or preserves its dilatation; the one innate, the other adventitious. The former is the elastic force, which exerts itself, not only when it is compressed into a less compass than usual, as in wind-guns, but likewise in common air, which, as is evident from the experiments of the air-pump, when pressed by the incumbent air, does, upon removing that pressure, expand itself, if

no other air be equally compressed, or any other impediment hinder; for flaccid bladders are spontaneously inflated under the receiver, nay even in the free air, if they are carried from a valley to an high hill; because there they are less compressed.

The adventitious expansive force of the air, which supplies the place of its elasticity, is either heat or something else analogous to heat in fermentation, or the like natural operation. Thus, it is possible that the air included in the bubble, and rarer than the circumambient air, may yet maintain itself, and suffer a compression from it, which is manifest by the experiment of thermometers; and the greater the heat is, or any other force that internally dilates the air, the more will the aqueous pellicle be extended, and become the thinner. But here a new question arises, namely, how such bubbles can be formed, seeing the heat both of the included and circumambient air seems to be the same; in answer to this, it is to be observed, that the included air shall acquire a greater degree of heat than that which even the particles of the external air have; because the circumambient air has both a greater and a different motion from the bubble: whence new hot particles thereof continually flowing to the same bubble like a hot wind, communicate a new degree of heat to the pellicle, and through it to the included air by the continued contact of new air, as we feel that the hand grows either warmer or colder, if moved in hot or cold water, than if it was at rest therein: and it is the same thing, if the water be moved about the hand, because many aqueous particles successively touch the same part of the hand, and communicate their quality thereto. From this principle it appears, that wine in a glass bottle, swiftly moved up and down in cold water, or the water moved about the bottle, is the sooner cooled.

Now, if we understand the cause why the bubbles of vapours ascend, it will be no difficult matter to explain why they fall down again: for upon the heat gradually vanishing, the bubble will be compressed by the circumambient air; so that the included air, upon the ceasing of the adventitious dilatation, shall return to a like density therewith; upon which the aqueous pellicle can neither ascend in the air, nor support itself therein, no more than an iron vessel can float, or ascend in water, if it is filled therewith. However, it is possible, and it usually is so, that the vapours that are even ready to fall down, remain a little suspended in the air, in the

same manner in which dust is sustained therein; because air, as all other fluids, has a certain degree of tenacity or cohesion of its parts, so as to require some degree of force, however small, to break through it; and because very small bodies have a small weight in proportion to their surface; yet, notwithstanding their weight, they often remain suspended, and they are only tossed up and down by the motion of the sustaining air. The same thing, therefore, happens to bubbles and very small drops; but if a great number of drops concur, which is done by that very tossing and motion, they coalesce into a larger one, and because the surfaces increase only as the squares, but the weights as the cubes of their diameters. Hence it is, that a bubble, or drop, by growing larger, acquires a sufficient force to fall down; and even the superior bubbles, falling on the inferior ones, coalesce with them, and become bigger.

From these principles we shall now proceed to shew, by a calculus, how great the tenacity of aqueous particles in vapours must necessarily be, in proportion to the rarity of the included air, that such vapours may ascend.

Let r to d be the ratio of the density of the air included in a bubble to the specific gravity of water, and p the weight of common air of the same bulk with a bubble of the vapour; let the center of the bubble be A , and AB the radius of the sphere of included air, but AC the radius of the sphere of the whole bubble, the space of included air will be as the cube of AB , the space of the whole bubble as the cube of AC , and the space which the pellicle occupies as the difference of these cubes. Let us suppose that space of the pellicle to be to the space of the whole bubble, as 1 to r , the space of the pellicle will be as the cube of $\frac{AC}{r}$, which is equal

to the cube of AC — the cube of AB : therefore, the cube of AB is equal to the cube of AC — the cube of $\frac{AC}{r}$, equal

the cube of $AC \times 1 - \frac{1}{r}$ equal the cube

of $AC \times \frac{r-1}{r}$: and therefore, the cube of AB is to the cube of AC , as $r-1$ to r . But the weight of the included air is to that of common air of equal bulk with the bubble, or to p in the compound ratio of the volumes, (or of the cube of AB to the cube of AC ; or $r-1$ to r) and of the specific gravities; (1 to d) that is, in the ratio of $r-1$ to $r d$. The weight,

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therefore, of the included air will be $p \times \frac{r-1}{rd}$: the weight of the including

pellicle of water will be in like manner to the weight of common air of equal bulk with the bubble in the compound ratio of the volumes, (1 to r by the hypothesis) and of the specific gravities 800 to 1; (water being 800 times the specific gravity of air, by experiments) the weight of the pellicle,

therefore will be $\frac{800p}{r}$; but, adding the weight of the pellicle to the weight of the included air, we shall have the weight of the whole bubble, which will be

$p \times \frac{r-1+800d}{rd}$, and that should be less

than p , the weight of common air of equal bulk with the bubble, that the bubble may ascend therein; and $r-1+800d$, will be less than rd : and, therefore, rd will be greater than $800d-1$; and, there-

fore, r will be greater than $\frac{800d-1}{d-1}$, or

the ratio of the space of the bubble to that of the pellicle, will be greater than $800d-1$ to $d-1$. Whence if d be 10, or if common air be 10 times denser than the included air, the ratio of the space of the bubble to that which the pellicle occupies, will be greater than the ratio of 7999

to 9, or greater than 888,777, &c. to unity; where 888 are unities, but 777, &c. is a decimal fraction; to wit, 7,07,007, &c. as you would incline to be more exact: and, therefore, the space of the whole bubble will, in this case, exceed that of the aqueous pellicle upwards of 888 times.

The ratio of the thickness of the pellicle to the radius of the spherical bubble; that is, the ratio of $AC-AB$ to AC may, from hence be easily determined; for AB

is to AC as $\frac{r-1}{r}$ to r . The thick-

ness, therefore, of the pellicle is to the radius of the bubble as $1-\frac{r-1}{r}$ to unity:

besides $r-1$ is to r as $\frac{r-1}{r}$ to unity; and

since r is greater than $\frac{800d-1}{d-1}$, $\frac{1}{r}$

will be less than $\frac{d-1}{800d-1}$, and $\frac{r-1}{r}$ will

be greater than $1-\frac{d-1}{800d-1}$, or than

$\frac{800d-1-d+1}{800d-1}$, or than $\frac{799d}{800d-1}$: there-

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fore $\frac{r-1}{r}$ is greater than $\frac{799d}{800d-1}$

therefore at length $1-\frac{r-1}{r}$, or the thick-

ness of the pellicle, if unity express the radius

of the bubble, is less than $1-\frac{799d}{800d-1}$,

that the bubble may ascend in air.

By the rules which Archimedes has given, it appears that if a vessel contain a weight of water greater than its own weight, it will float therein; but if still greater vessels be taken, the weights of the vessels increase nearly as the surfaces; but their capacities as the solidities, that is, the weights of the vessels are as the squares of the diameters, the capacities (and consequently the weight of water they contain) as the cubes; and thus, by augmenting the capacity of the vessel, the weight of the vessel is immediately overcome by the weight of what it can contain, and the vessel may float.

ASCETICS, in ecclesiastical history, such Christians in the primitive church as injured themselves to great degrees of abstinence and fasting, in order to subdue their passions. In short, every degree of uncommon piety laid claim to the title of ascetic.

ASCI, in geography, the inhabitants of the torrid zone; because, at certain times of the year, they have no shadow.

ASCITES, in medicine, the same with dropsy. See DROPSY.

ASH, fraxinus, in botany, a genus of trees: it hath pinnated leaves, which mostly end in an odd lobe: the male flowers, which grow at a remote distance from the fruit, have no petals, but consist in many stamina; the ovary becomes a seed-vessel, containing one seed at the bottom, shaped like a bird's tongue.

There are six species of this tree; all which may be propagated by budding them into common ash; upon which they will all take very well, and become harder than upon their own stock: but these budded trees never grow so large as those which are raised from seeds; nor will the stock and bud keep pace in their growth; so that there will be a remarkable difference in the size of the stem, and above the place where they are budded: but few of these foreign kinds have yet arrived at an age to produce seeds in England, the nursery-gardeners having been obliged to propagate these sorts by budding and grafting.

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The common ash is propagated by sowing the keys in October or November, on a bed of fresh earth; which should be well dug, and cleansed from roots and noxious weeds. A small bed will be sufficient to raise a great quantity of these trees. The seeds should be sown pretty thick, and covered about half an inch thick with earth.

These seeds, many times, continue until the second spring before they come up; you should, therefore, let the bed remain undisturbed, and keep it clean from weeds. When your plants come up, you must also keep them very clear from weeds, and if the season should prove very dry, if you give them now and then a little water, it will greatly promote their growth. In this bed they should remain no longer than the autumn following, provided they have grown well; at which time you should prepare a nursery, which should be well dug and cleared as before; then with your spade loosen the roots of the plants before you draw them up; otherwise you will endanger the breaking of them. When you have drawn them out of the ground, shorten the downright tap root; but do not cut off any of the lateral fibres; then, having prepared your ground, plant them in rows, three feet distance, row from row, and a foot asunder in the rows, closing the earth to the roots with your feet.

In this nursery they may remain two or three years, observing to keep them clear from weeds, as also to trim up the side branches every winter, and dig the ground between the rows; after which time you may remove them where they are to remain for good. This tree will grow upon almost any soil; but the better the soil is, the more the tree will increase in bulk. Notwithstanding which, it should not, by any means, be planted too near the other trees or plants; for it will exhaust all the goodness of the soil from them; and the shade of this tree is malignant to most other plants. The distance they should be planted is eight feet square; and, after they have been planted one year, you may cut down every other tree, choosing such of them as are crooked, within six or eight inches of the ground; this will cause them to make many strong, vigorous shoots; which, in seven or eight years time, will be fit for arbour poles, or to make hoops; and the other straight trees may be suffered to grow for other timber; the number of which trees may be lessened, as they increase in bulk, leaving still the most promising ones to grow for larger timber.

If a wood of these trees is rightly managed, it will turn greatly to the advan-

tage of its owner; for by the underwood, which will be fit to cut every seven or eight years, for the uses above-mentioned, there will be a continual income, more than sufficient to pay the rent of the ground, and all other charges; and still there will be a stock preserved for timber, which, in a few years, will be worth forty or fifty shillings per tree.

This timber is of excellent use to the wheel-wrights, and cart-wrights, for ploughs, axle-trees, wheel-rings, harrows, bells, oars, blocks for pulleys, and many other purposes.

The best season for felling of these trees is from November to February; for if it be done either too early in autumn, or too late in the spring, the timber will be subject to be infested with worms, and other insects: but, for lopping of pollards, the spring is preferable for all soft woods.

ASHES, *Cineres*, the earthy particles of combustible substances after they have been burnt.

Ashes that are produced from vegetable bodies, contain a considerable quantity of fixt salt, blended with the terrene particles; and from these ashes the fixed alkaline salts, called pot-ash, pearl-ash, &c. are extracted.

The ashes of all vegetables are vitrifiable, and found to contain iron. They are also an excellent manure for cold and wet grounds.

ASIA, is one of the four general parts of the whole earth. It is separated from Europe by the Mediterranean Sea, the Archipelago, the Black Sea, the Palus Meotis, the Don, and the Dwina; and from Africa by the Arabic Gulph or Red Sea, and the Isthmus of Suez. Every other part is surrounded by the ocean. Late discoveries shew that it does not join to America, though it extends very near it. It is situated between forty-four and an hundred and ninety-six degrees of longitude, and one and seventy-four degrees of latitude. From the Dardanelles to the most eastern shore of Tartary, it is four thousand seven hundred and forty miles in length, and from the most southern point of Malacca to the most northern point of Nova Zembla, is four thousand three hundred and eighty miles in breadth. It may be divided into ten parts; Turkey in Asia, Arabia, Persia, the Mogul's Empire, with the two Peninsulas of the Indies; Tibet, China, and Korea; Great and Little Bukaria, with Korasin; Tartary, Siberia, and the islands. Turkey, Persia, the Mogul's Empire, and China, are subject to single monarchs; the rest are divided among

among several sovereigns. Siberia is subject to the Russians, Little Tartary to the Tartars of the Crim; Great Tartary, partly to the Russians, partly to its own monarch, and partly to China. Great Bukaria is subject to the Persians; and Little Bukaria, partly to the Tartars, and partly to the emperor of China. There are seven emperors, thirty kings, besides petty princes, and the rajahs of India. The emperors are, the grand signior, the great mogul, the emperor of Japan, the khan of the Eluth Tartars, the emperor of Russia, the emperor of China, and the shah of Persia. The principal religions of Asia, are, the Christian, the Mahomedan, the Pagan, and that of Confucius. The Christian religion is professed in some parts of Asiatic Turkey; part of Little Tartary, the north-west part of Persia, and by the Russians in Siberia. The Mahomedan is established in Arabia, Persia, Little Tartary, Bukaria, and the Mogul's empire. The Pagan religion, wherein the worship of the Deity is mixt with that of idols, is professed by the bulk of the inhabitants of the Mogul's empire; in both the Peninsulas of India; in China and Siberia; in the islands of Asia; in all Western Tartary, in Tibet, and in all the countries between India and China. The religion of Confucius is established in China.

The languages of Asia are very numerous, and therefore we shall only mention the chief. The principal of Turkey in Europe, are the Grecian and Turkish; the Armenian is spoken in part of Turkey in Asia, and Persia; the Arabic is the only tongue in Arabia, and is spread over part of Turkey in Asia, as a learned language. The Persian is used in Persia, and the court of the great mogul. The Indian is spoken in India, by the ancient inhabitants of that country. The Malayan language is common on the coast of India, and in some of the islands. The Siamese in Siam, the Tibetan in Tibet; the Manchew in China and Eastern Tartary; and the Tartarian in Great Tartary. Besides these, there are several distinct languages in Siberia, and the islands of Asia.

The principal rivers of Asia are, the Euphrates and Tigris, in Turkey; the Indus and Ganges, in India; the Kiang and Hoang-ho, in China; the Sir Amu and Wolga, in Western Tartary; the Saghalia Ula or Amur, in Eastern Tartary; the Irtilsh, Oby, Jenisea, and Lena, in Siberia. The lakes are, that prodigious one called the Caspian Sea, and near that another very large one, called the lake Aval. The Baykal is in Siberia, the Ko-

konor near Tibet, and the Tong Ping in China. The chief mountains are, the Taurus in Turkey and Persia; the Imaus between India and Tibet, and the Alay, in Tartary.

The Asian islands are very numerous, some reckoning one hundred and fifty thousand; but of this there is no certainty. Those that lie on the east of Asia are, the islands of Jesso or Yedso, and Japan, with several small ones on the coast of Korea, the island of Formosa; and the Philippines. Those on the west, are the island of Cyprus, in the Mediterranean; Scanderon, off Natolia, and the isle of Rhodes, off Phischo, on the same coast. Those on the south are, the isles of the Maldives, in the Indian Sea, the isle of Ceylon, off cape Komorin, with a great many small ones in the gulph of Bengal. Those on the south-east are, the isles of Sandi, as Sumatra, the isles of Java, Borneo, &c.

ASIA MINOR. See NATOLIA.

ASP, in natural history, a species of serpents frequently mentioned by the ancients, but without any accurate description of it. It is undoubtedly a native of Africa; and it was by the bite of one of these serpents that Cleopatra is said to have ended her days. Seba gives the name of asp to several serpents, the first of which is said to be found in Egypt, and is spotted with black.

The second is the American asp, which nearly resembles this in every respect.

The third is the Java asp of a sea-green, with a sharp mouth, and a long head covered with scales on the fore parts.

The fourth is the Surinam asp of a bright green colour, sprinkled with blackish spots.

ASPARAGUS, in botany, the name of a genus of plants, whose flower is of the rotaceous kind. The garden asparagus is propagated by sowing of the seeds; in the procuring of which you should be particularly careful, since the goodness of your future crop, in a great measure, depends thereon: you should, therefore, get it from some person of integrity; or, if you have any opportunity, save it yourself, or in some other neighbouring garden. You must look over the asparagus-beds in the beginning of the season, and mark some of the largest and fairest buds with a piece of stick; which buds, when they have branched out, may be fastened to stakes thrust into the ground, to preserve them from breaking. These buds will, many of them, produce great numbers of red berries, which should be suffered to

remain

remain upon the branches until the latter end of September, when the haulm will begin to decay; then cut off the branches, and strip the berries into a tub, where they may lie in an heap to sweat for three weeks, by which means the outer husks will be rotten; then fill the tub with water, and with your hands break all the husks, by squeezing them between your hands. These husks will all swim upon the water, but the seed will sink to the bottom; so that, by pouring off the water gently, the husks will be carried along with it; and by putting fresh water two or three times, and stirring your seed, you will make it entirely clean; then spread your seed upon a mat, and expose it to the sun and air in dry weather, until it is perfectly dry, when you may put it into a bag, and hang it up in a dry place, till the beginning of February; at which time you must prepare a bed of good, rich, earth, whereon you must sow your seed; (but not too thick, which will cause your plants to be small) and, having trod your seed into the ground, rake it over smooth.

In the following summer keep it diligently cleared from weeds, and toward the latter end of October, when the haulm is quite withered, you may spread a little rotten dung over the surface of the ground, about an inch thick, which will preserve the young buds from being hurt by the frosts, &c.

In the spring following your plants will be fit to plant out for good; (for I would never chuse plants of more than one year's growth, having very often experienced them to take much better than older, and to produce finer roots) you must therefore prepare your ground by trenching it well, burying therein a good quantity of rotten dung at the bottom of each trench, that it may lie at least six inches below the surface of the ground; then level your whole plot very exactly, taking out all large stones; but this should be done not long before you intend to plant your asparagus, in which you must be governed according to the nature of your soil, or the season; for if your soil is dry, and the season forward, you may plant early in March; but, in a very wet soil, it is better to wait till the end of that month, or the beginning of April, which is about the season that the plants are beginning to shoot.

The season being now come, you must, with a narrow-pronged long-fork, carefully fork up your roots, shaking them

out of the earth, and separating them from each other; observing to lay their heads even, for the more convenient planting them; which must be performed in this manner: Your plot of ground being levelled, you must begin at one side thereof, ranging a line very tight across the piece, by which you must throw out a trench exactly straight, and about six inches deep, into which you must lay your roots, spreading them with your fingers, and placing them upright against the back of the trench, that the beds may stand forward, and be about two inches below the surface of the ground, and at twelve inches distance from each other; then, with a rake, draw the earth into the trench again, laying it very level, which will preserve the roots in their right position: then remove your line a foot farther back, and make another trench in like manner, laying therein your plants, as before directed, and continuing the same distance row from row; only observing, between every four rows, to leave the distance of two feet four inches, for an alley to go between the beds, to cut the asparagus, &c.

Your plot of ground being finished and levelled, you may sow thereon a small crop of onions, which will not hurt your asparagus; and tread in your seeds, raking your ground level. There are some persons who plant the seeds of asparagus in the place where the roots are to remain; which is a very good method, if it be performed with care. The way is this: after the ground has been well trenched and dunged, they lay it level, and draw a line across the ground, in the same manner as is practised for planting of the young plants; then, with a dibble, make holes at a foot distance, into each of which you must drop two seeds, for fear one should miscarry; these holes should not be more than half an inch deep: then cover the seeds, by striking the earth in upon it; and go on, removing the line a foot back for another row; and, after four rows are finished, leave a space for an alley between the beds, if it is designed to stand for the natural season of cutting; but if it is to be taken up for hot-beds, there may be six rows planted in each bed; and the distance in the rows need not be more than nine inches. This should be performed by the middle of February, because the seeds lie long in the ground: but if onions are intended to be sown upon the ground, that may be performed a fortnight or three weeks after, provided the ground is not stirred

stirred so deep as to disturb the asparagus-seeds, in raking the onion seed into the ground.

When your asparagus is come up, (which will be in three weeks or a month after planting) you must, with a small hoe, cut up the weeds, and thin your crop of onions, where they may have come up in bunches; but this must be done carefully, and in dry weather, that the weeds may die as fast as they are cut up. This work must be repeated about three times; which, if well done, and the season not too wet, will keep the ground clear from weeds, until the onions are fit to be pulled up; which is commonly in August, and is known when their greens fall down. When you have drawn off your onions, you must clean your ground well from weeds; which will keep it clean till you earth your beds, which must be done in October, when the haulm begins to decay; for if you cut off the haulm, while green, the roots will shoot fresh again, which will greatly weaken them. This young haulm should be cut off with a knife, leaving the stems two or three inches above ground, which will be a guide to you to distinguish the beds from the alleys; then, with an hoe, clear off the weeds into the alleys, and dig up the alleys, burying the weeds in the bottom; and throw the earth upon the beds, so that the beds may be about five inches above the level of the alleys: then you may plant a row of cole-worts in the middle of the alleys; but do not sow or plant any thing upon the beds, which would greatly weaken the roots: nor would I ever advise the planting of beans in the alley (as is the practice of many), for it greatly damages the two outside rows of the asparagus. In this manner it must remain till spring, when you must hoe over the beds, to destroy all young weeds; then rake them smooth, and observe, all the succeeding summer, to keep them clear from weeds; and, in October, dig up the alleys again, as was before directed, earthing the beds, &c. The second spring after planting, you may begin to cut some of your asparagus, though it will be much better to stay until the third; therefore now you must fork up your beds with a flat-pronged fork, made on purpose, which is commonly called an asparagus fork: this must be done before the buds shoot in the spring, and with care, lest you fork too deep, and bruise the head of the root; then rake the beds over smooth, just before the buds appear above-ground; which will destroy all young

weeds, and keep your beds clean much longer than if left unranked, or done so soon as forked: and when your buds appear about four or five inches above-ground, you may then cut them; but it should be done sparingly, only taking the large buds, and suffering the small to run up to strengthen the roots; for the more you cut, the more the roots will produce; but they will be smaller, and sooner decay. When you cut a bud, you must open the ground with your knife, (which should be very narrow and long in the blades, and filled with teeth like a saw) to see whether any more young buds are coming up close by it, which might be either broken or bruised in cutting the other; then, with your knife, saw it off about three inches under-ground. This may appear a troublesome affair to people unacquainted with the practical part; but those who are employed in cutting asparagus, will perform a great deal of this work in a short time; but care in doing it is absolutely necessary to be observed by all who cut asparagus.

The manner of dressing your asparagus-beds, is every year the same as directed for the second; only observe, every other year, to lay a little rotten dung, from a melon or cucumber-bed, all over your beds, burying some in the alleys also at the time for digging them up. This will preserve your ground in heart, to maintain your roots in vigour; and, by this management, a plot of good asparagus may be continued for ten or twelve years in cutting, and will produce good buds. *Miller's Gard. Dict.*

ASPECT, among gardeners, the same with exposure. See EXPOSURE.

The word is derived from *aspicio*, to view.

ASPECT, in astronomy, denotes the situation of the planets and stars, with respect to each other. There are five different aspects. 1. Sextile aspect is when the planets or stars are 60° distant, and marked thus $\circ$. 2) The quartile, or quadrature, when they are 90° distant, marked $\square$. 3. Trine, when 120° distant, marked Δ . 4. Opposition, when 180° distant, marked 8. And, 5. Conjunction, when both in the same degree, marked 6.

Double ASPECT, in painting, is used where a single figure is so contrived as to represent two or more different objects, either by changing the position of the eye, or by means of angular glasses.

ASPEN-TREE, in botany, the poplar with trembling leaves. See POPULAR.

ASPERA

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ASPERSA *Arteria*, trachea, or wind-pipe, in anatomy, a large canal, partly cartilaginous, and partly membranous, situated anteriorly in the lower part of the neck, whence it runs down into the thorax, between the two pleuræ, through the upper space left between the duplicature of the mediastinum, behind the thymus.

ASPERIFOLIATE, or **ASPERIFOLIUS**, among botanists, plants that are rough leaved, having their leaves placed alternately on their stalks, and a monopetalous flower divided into five parts. The bugloss, borage, &c. are of this class.

ASPERITY, the inequality of the surface of any body, which hinders the hand from passing over it freely.

ASPERULA, woodruffe, in botany, a genus of plants. The leaves and roots of which are esteemed aperient and diuretic, and consequently prescribed in the jaundice, and obstructions of the viscera.

ASPHALTUM, *Bitumen Judaicum*, or Jews pitch, in natural history, a solid, light, bituminous substance, found floating on the surface of the Dead-sea, and dug out of the earth in several parts of Egypt.

Abundance of virtues are attributed to this bitumen; but it has for many years been disregarded in this country.

ASPHODELUS, asphodel, in botany, a genus of plants.

All the sorts of which are very pretty ornaments for a flower-garden; and, requiring very little trouble to cultivate them, are rendered more acceptable. They may be all propagated by seeds, which should be sown soon after they are ripe, on a warm border of fresh light earth. In the spring the plants will appear, when you should carefully clear them from weeds; and, in dry weather, they must be frequently watered: if this be duly observed, the plants will have acquired strength enough to be transplanted by the Michaelmas following into the flower nursery, where you may let them remain a Year, and then transplant them into the flower garden, when their leaves are decayed; observing to place them in the middle of the borders, among other hardy kind of flowers, where, being properly intermixed, they will make an agreeable variety, and continue a long time in flower. These plants may also be propagated by parting their roots; but this must not be too often repeated, lest it weaken the roots, and prevent their flowering so strong as they otherwise would do.

ASPHURELATA, in natural history, semi-metallic fossils, which are fusible by fire, but not malleable in the purest state. There are five bodies belonging

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to this class of fossils, namely, antimony, bismuth, cobalt, zinc, and mercury, or quicksilver. See each under its proper article.

ASPIRATION, in grammar, the pronouncing a syllable with some vehemence; as we do in those words which have the letter *b* before them; as *bear, band, beat, beat, health, &c.*

ASPLENIUM, spleenwort or milk-waste, in botany, a small bushy plant, growing in fissures of rocks and old walls: The leaves stand recommended as a pectoral, similar to maiden-hair, to which they have been frequently joined in infusions and apozems; and likewise as an aperient in obstructions of the viscera.

ASS, in natural history, an animal well-known, which would be of great value, if horses were not so common; and if he was taken as much care of, he would, in all probability, turn out to a much greater advantage than he does at present. But we must not forget that an ass is not without some good qualities; for he seems to know his master, and can distinguish him from all other men, though he has been ever so ill-treated. He also knows the roads he has been accustomed to, and can find them without a guide. He has good eyes, a fine smell, and an excellent ear. He walks, trots, and gallops like a horse; but his pace in all other respects is much slower, and he is sooner tired. Of all animals that are covered with hair, the ass is least subject to vermin; which may perhaps proceed from the hardness and dryness of his skin; for which reason he is less sensible of the strokes of a whip, and the stinging of flies, than a horse. The teeth fall out, and grow at the same age, and in the same manner, as in a horse, and he has the same marks in his mouth. Asses generally breed in May and June, and in the tenth month the milk appears in the dugs of the female; but she does not foal till the twelfth month. She always brings forth one at a time: at least there are few instances to the contrary. The ass, like the horse, is three or four years in growing, and will live till twenty-five or thirty years. They sleep much less than a horse; and never lie down for that purpose, unless they are very much tired. In general, they have much better health than a horse, and are subject to fewer diseases.

The onager, or wild-ass, has been, by some authors, confounded with the zebra; but very improperly, the latter being a distinct species: for the onager is not streaked like the zebra, nor is his shape so beautiful. Some have also been of opi-

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nion, that the wild ass is not a distinct animal from the common ass; but all judicious travellers that have taken notice of them, affirm the contrary. They have indeed much the same shape as common asses, but are of a brighter colour, and a white list runs from the head to the tail. Of the hide of these asses, and particularly of that part next the rump, they make that excellent leather which we call *snagreen*, and which is put to so many curious uses.

ASSES Milk, the milk of an ass. In the first place asses milk is thinner than all other milks, and abounds with watery and serous ingredients, and consequently must be extremely proper to open the obstructed vessels, to attenuate the gross and viscid juices, and set them in an easy and free motion. Again, when we know that multitudes of dilemperers proceed from an acrid, salt, and corrosive state of the fluids, we cannot but be assured that the thin serum of asses milk will not fail of diluting, softening, and subduing them: though it must be allowed, at the same time, that the sweet oily substance contained in it contributes much towards this effect.

It is another extraordinary excellence of asses milk, that it contains but a small proportion of the grosser curdling substance. For this reason it easily diffuses itself into the minutest extremities of the blood-vessels, thoroughly dilutes the vital juices, liquifies the sluggish humours, and, when it has thus dissolved them, conveys them off. A third circumstance that more strongly evinces the salubrious quality of asses milk, is, that the share of cheese-like substance which it contains, is extremely soft and tender, and never makes a gross or firm curd. In all cases which are sought by milk, nothing can be so hurtful and dangerous as to have it curdle in the stomach. It is beyond dispute therefore, that that milk is the most wholesome and proper for medicinal uses, which has least tendency to curdle, which is the case with asses milk in the most remarkable degree. A fourth, and a very great excellence in asses milk, is its exquisite sweetness, in which it exceeds all other species of milk, except the human: As asses milk therefore contains so plentiful a proportion of sweet salts, we cannot doubt but it has for that reason a very singular medicinal quality which cannot be expected in other kinds of milk: for this honey-like salt greatly softens, checks, and moderates the acrimony of humours, whether acid or bilious; and, by gently

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irritating the fibres of the bowels, urges them to their office and operations. Hippocrates very justly observes, that asses milk disposes to purging more than any other; and in another place advises, as a remedy for the *fluor albus*, first to occasion a gentle purging by drinking asses milk, and then to change it for cows milk: Hence we see the reason why so much benefit is often found by persons of a consumptive habit, from drinking asses milk.

ASSARON, or **OMER**, a measure of capacity, used among the Hebrews, containing five pints.

ASSASSIN, one who kills another secretly, or by attacking his enemy unprepared. Also a person who, for the sake of some reward, undertakes to murder a person in order to revenge the quarrel of another.

ASSAULT, in law, a violent injury offered to a man's person, of a higher nature than battery; for it may be committed by offering a blow, or pronouncing a terrifying speech. Thus, in case a person threatens to beat another, or lies in wait to do it, if the other is hindered in his business, and receives loss, it will be an assault for which an action may be brought, and damages recovered. Not only striking, but thrusting, pushing, throwing stones, or even drink in the face of any person, are deemed assaults. But in all these cases, a man may plead in his justification the defence of his person or goods, father, mother, wife, master, &c.

ASSAULT, in the military art, a furious effort made to carry a fortified post, camp, or fortress, wherein the assailants do not screen themselves behind any works.

ASSAY, in metallurgy, the trial of the goodness and purity of metals and metallic substances.

ASSAY Oven, or **Docimastical Furnace**, a furnace used in assaying metals.

ASSAYING, the art of discovering how much pure metal is contained in any ore; or the proportion of the several ingredients in any mixed metal. See the articles **GOLD**, **SILVER**, **LEAD**, **COPPER**, &c.

ASSAYING of weights and measures, the examining the several weights and measures by the clerk of the market.

ASSAY-MASTER, an officer appointed by certain corporations, to make just assays of all gold and silver brought to him for that purpose, and make a true report thereof.

ASSEMBLY,

ASSEMBLY, in military affairs, the second beating of the drum before a march, on which the soldiers strike their tents, roll them up, and stand to arms.

ASSENT, *Assensus*, in a general sense, an agreement to something proposed or affirmed by another.

Royal ASSENT, the approbation given by the king to a bill in parliament, after which it becomes a law.

ASSIGN, in common law, one to whom a thing is assigned or made over.

ASSIGNEE, in law, a person appointed by another to do an act, transact some business, or enjoy a particular thing.

Assignees may be appointed either by deed or by law: by deed, where the lessor of a farm assigns the same to another; by law, where the law makes an assignee without any appointment of the person intitled; as an executor is assignee in law to the testator, and an administrator to an intestate. But when there is an assignee by deed, the assignee in law is not allowed.

ASSIGNING, in a general sense, the making over the right of one person to another. In a particular sense, the pointing out of something, as an error, false judgment, or waste: but in these cases it must be shewn wherein the error is committed, where and how the judgment is unjust, and where the waste is committed.

ASSIGNMENT, in law, the transferring the interest a person has in a lease, or other thing, to another.

ASSISE, implies a court, place, or time, when and where the writs and processes, whether civil or criminal, are decided by judge and jury. In this sense, assise is either general or special; general, when judges go their respective circuits, with commission to take all assise: special, when a commission is granted to particular persons for taking an assise upon one or two disseins only.

By magna charta, justices shall be sent through every county, once a year, who, with the knights of the several shires, shall take assise of novel disseisin. With regard to the general assise, all the counties of England are divided into six circuits, and two judges are assigned by the king's commission to every circuit, who now hold the assises twice a year, in every county except Middlesex, and the counties palatine. These judges have five several commissions. 1. Of oyer and terminer, by which they are empowered to try treasons, felonies, &c. 2. Of gaol-delivery, which empowers them to try every prisoner in gaol, be his offence what it will. 3. Of assise, which gives

them authority to do right upon writs, brought by persons wrongfully thrust out of their lands and possessions. 4. Of nisi prius, by which civil causes come to an issue in the courts of Westminster, are tried in the vacation by a jury of twelve men, in the county where the cause of action arises. 5. A commission of the peace in every county of the circuit: and all justices of the peace and sheriffs are to attend upon the judges, otherwise they are liable to be fined.

ASSISE is also used in several other significations; as 1. For a jury, where assises of novel disseisin are tried, and the pannels of assise shall be arraigned. 2. For a quantity of wheat, bread, &c. prescribed by the statute.

ASSOCIATION, the act of associating, or constituting a society, or partnership, in order to carry some scheme or affair with more advantage.

ASSOCIATION of Ideas, is where ideas constantly and immediately follow one another, so that the one shall almost infallibly produce the other, whether there be any natural relation between them or not.

ASSUMPSIT, in law, a voluntary or verbal promise, whereby a person undertakes to perform some agreement, or pay a certain sum to another. Thus, where a man sells goods to another, the law makes the assumpsit; and promises he shall pay for them.

ASSUMPTION, a festival in the Romish church, celebrated in honour of the miraculous ascension of the Virgin Mary, body and soul, into heaven.

ASSUMPTION, in logic, the minor or second proposition in a categorical syllogism.

ASSUMPTION is also sometimes used to imply a consequence drawn from the propositions which compose an argument.

ASSURANCE, or **INSURANCE**. See **INSURANCE**.

* **ASTARTE**, in heathen mythology, a Phœnician goddess, called the queen of heaven. It is said the moon was adored under this name; others suppose her to be the gooddeß Juno; Cicero calls her the fourth Venus of the Assyrians; and Lucian, Europa, the daughter of Agenor. She was sometimes represented holding a long wand with a cross upon the top of it. Some medals represent her crowned with battlements, and others with a crown of rays. Sanchoniathon represents her with a cow's head; and in a medal struck at Cæsarea, in Palestine, she is crowned with battlements, with a man's head in her right hand, and a staff in her left. This goddess, was originally no more than

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one of the Egyptian symbols, set up and joined with the several signs of the zodiac, to make known the different seasons; and it is plain, that from the different manner in which the Egyptian Isis was represented, a number of different goddesses were formed by other nations, and worshipped under different names.

• • ASTERIA, in fabulous history was the daughter of Cœa, Latona's sister. Jupiter surprised her in the shape of an eagle, and carried her away in his talons.

ASTERISK, a mark or character in the form of a small star (*), placed over or before or after any word or sentence, to render it more conspicuous, or refer the reader to the margin, or elsewhere for a quotation, explanation, or the like.

ASTERN, in navigation, any distance behind a ship, or in direct opposition to that point of the compass which the stems.

ASTHMA, in medicine, a painful, difficult, and laborious respiration, occasioned by an intolerable straightness of the præcordia, which, by impeding the free circulation of the blood through the lungs, endangers a suffocation.

There are several kinds of asthmas: one difficulty of breathing proceeds from corpulency, and a very full habit of body, and is most apparent after violent motion; but this is a slight disorder, and free from all danger. The next is the pituitous asthma, attended with a moist cough, and the bringing up pituitous matter; it attacks the patient at all hours, and in all positions of the body; and is owing to a plenty of a viscid mucus, stuffing the vesiculæ of the lungs, and hindering the free ingress and egress of the air through them. Another is owing to the convulsive contraction of the parts designed for respiration, and proceeds from various causes, both within and without the thorax; and this is called the dry, flatulent, or convulsive asthma.

The longer this disease continues, the more sharp and violent all the symptoms become. The patient's body grows more costive, and the urine is thin and watery; most commonly the feet swell, then the hands, face, and back; there is a numbness of the arms; the countenance is wan and livid, or of a leaden colour; then comes on a little fever, which grows worse in the evening; the whole body is cachectic, with an œdematus swelling of the feet; there is a dropsy of the breast, or an ascites, or anasarca; at least there is a palsy on one side, or of the arm; or instead thereof, a palsy of the eye-lids. This disease is likewise called by some, a suffocating asthma; by others the nervous asthma.

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When the disease is recent, and is owing only to the spasmodic contraction of the præcordia, there are hopes of a cure; especially if the matter of the gout, ulcers, and exanthemata, are sent back to their proper seats. When the menses or hæmorrhoids, which were stopped, return, it yields relief, and if the disease was not too far advanced, perfect health. If it is inveterate or ill-managed, it brings on a dropsy of the breast, obstructions of the lower belly, œdematous swellings of the feet, a cachexy, and an universal dropsy. In general, all convulsive asthmas portend a sudden exit, or suffocation, especially if there is a polypus of the heart; if it continues long, then the patient will die of the dropsy; in which case it will be soon fatal: when there is a slow fever, an unequal intermitting pulse, a palsy of the arms, a continual palpitation of the heart, little urine, a syncope or swooning, then death is at hand. Some are carried off by an inflammation of the lungs, and the more grievous the disease, the more languid the pulse. The asthma, in old persons, continues till death: that which is caused by a dislocation of the vertebræ cannot be cured till they are reduced. The more violent the accession, the longer it lasts, and the oftener it returns the greater the danger of suffocation.

In the paroxysm, because the body is generally bound, and the wind and humours are carried upwards, the speediest assistance is from emollient and carminative clysters.

If there is occasion, it may be repeated two or three times: afterwards use frictions of the feet, which have an incredible efficacy; also let them be put into warm water; for the feet are almost always cold. When there is a violent spasm about the præcordia, hot fomentations are necessary, or bladders filled with hot milk, and applied to the part affected; likewise nervous liniments are very useful, rubbed in with a warm hand.

Out of the fit, if it proceeds from too great a congestion of blood about the breast, or from a polypus of the heart, bleeding in the foot will be proper, as also scarifications; in a suppression of the hæmorrhoids, leeches should be applied to the anus; as also gentle laxatives to cleanse the primæ viæ: likewise bodily motion, slender diet, and soft drink. If there are hypochondriacal or flatulent symptoms, then gentle laxatives will be the more necessary, together with clysters. When the menses or hæmorrhoids are suppressed,

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suppressed, then nothing is better than the Bath waters, both for bathing and drinking; or the waters of Selters taken warm and mixed with milk.

When the asthma proceeds from the driving back some impure matter from the skin, or from the drying up of ulcers, and the humour is translated to the nervous parts of the breast, then gentle diaphoretics will be necessary to send it back to the superficies of the body.

ASTRÆA, in mythology, the goddess of Justice, the daughter of Jupiter and Themis, and came down from heaven in the golden age; but when the manners of men became corrupt, she left the earth and returned to heaven.

ASTRAGAL, in architecture, a small round moulding, in the form of a ring, serving as an ornament at the tops and bottoms of columns. Sometimes the astragal serves to separate the fæcie of the architrave; but then it is wrought in the form of a chaplet, composed of beads and berries. It is also used both above and below the lists, adjoining immediately to the die or square of the pedestal.

ASTRAGAL, in anatomy, the bone of the heel, having a convex head, articulated to the tibia by ginglymus.

ASTRAGAL, in gunnery, the cornice ring of a piece of ordnance.

ASTRAGULUS, milk-vetch, in botany, a genus of plants said to be diuretic, and to increase the milk of nurses.

ASTRINGENTS, among physicians, such medicines as are of an astringent or binding quality. Hoffman very judiciously observes, that astringents are very proper to restore a tone and elasticity to the animal fibres, when debilitated by diseases, intemperance, or accident: but they are very seldom proper without a previous attenuation of the juices, and a course of deobstruent medicines; because obstructions are more firmly rivited, and the viscid juices circulated with more difficulty, when the diameters of the vessels are constricted by astringents.

ASTRORITES, the star-stone, in natural history; see the article **STAR-STONE**.

ASTROLABE, among the ancients, signified the same with what we now call an armillary Sphere. See **ARMILLARY Sphere**.

ASTROLABE is also a name for the stereographic projection of the sphere, either on the plane of the equator, or the meridian.

ASTROBLAE, an instrument formerly used for taking the altitude of the sun or stars at sea,

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ASTROLOGICAL, something belonging to astrology.

ASTROLOGY, a fallacious art, pretending to foretel future events from the situation, different aspects, &c. of the heavenly bodies.

Astrology may be divided into two branches, natural and judiciary; the former being the prediction of natural effects, as the changes of weather, winds, storms, hurricanes, thunder, floods, earthquakes, &c. and the latter that which pretends to foretel moral events, or such as have a dependence on the freedom of the will.

ASTRONOMICAL, something relating to astronomy.

ASTRONOMICAL Calendar, an instrument engraved on copper plates, printed upon paper, and pasted on a board, with a brass slider carrying a hair, and shews by inspection the sun's meridian altitude, right ascension, declination, rising, setting, amplitude, &c. to a greater degree of exactness than the common globes.

ASTRONOMICAL Hours, the same with equal hours, twenty-four of which make a natural day.

ASTRONOMICAL Quadrant, an instrument contrived for taking the altitude, &c. of the heavenly bodies, in a very accurate manner. See *Astronomical Quadrant*.

ASTRONOMICAL Sector, a useful mathematical instrument, invented by the late ingenious Mr. Graham.

The lovers of astronomy are much obliged to the late ingenious Mr. Graham, F. R. S. not only for many useful improvements in the mechanism of several astronomical instruments, but also for contriving this very commodious and accurate one for the purpose of taking such differences of right ascension and declination as are too large to be observed through a fixed telescope; and yet with equal facility and exactness too in proportion to the radius of the instrument.

Let **A B** (plate VII. fig. 3.) represent an arch of a circle, containing ten or twelve degrees well divided, having a strong plate **C D** for its radius, fixed to the middle of the arch at **D**: let this radius be applied to the side of an axis **H F I**, and be moveable about a joint fixed to it at **F**, so that the plane of the sector may be always parallel to the axis **H I**; which being parallel to the axis of the earth, the plane of the sector will always be parallel to the plane of some hour-circle. Let a telescope **C E** be moveable about the center **C** of the arch **A B**,
from

from one end of it to the other, by turning a skrew at G; and let the line of sight be parallel to the plane of the sector. Now, by turning the whole instrument about the axis H I, till the plane of it be successively directed, first to one of the stars, and then to another, it is easy to move the sector about the joint F, into such a position, that the arch A B, when fixed, shall take in both the stars in their passage, by the plane of it, provided the difference of their declinations does not exceed the arch A. B. Then, having fixed the plane of the sector a little to the westward of both the stars, move the telescope C E by the skrew G; and observe, by a clock, the time of each transit over the cross hairs, and also the degrees and minutes upon the arch A B, cut by the index at each transit; then, in the differences of the arches, the difference of the declinations, and by the difference of the times, we have the difference of the right ascensions of the stars.

The dimensions of this instrument are these: the length of the telescope, or the radius of the sector, is $4\frac{1}{2}$ feet; the breadth of the radius, near the end C, is $7\frac{1}{2}$ inch; and at the end D two inches. The breadth of the limb A B is $1\frac{1}{2}$ inch; and its length six inches, containing ten degrees divided into quarters, and numbered from either end to the other. The telescope carries a nonius or subdividing plate, whose length being equal to sixteen quarters of a degree, is divided into fifteen equal parts; which, in effect, divides the limb into minutes, and by estimation, into smaller parts. The length of the square axis H I F is eighteen inches, and of the part H I twelve inches; and its thickness is about a quarter of an inch: the diameters of the circles are each five inches: the thickness of the plates, and the other measures, may be taken at the direction of a workman.

This instrument may be rectified, for making observations, in this manner: by placing the intersection of the cross hairs at the same distance from the plane of the sector, as the center of the object-glass, the plane described by the line of sight, during the circular motion of the telescope upon the limb, will be sufficiently true, or free from conical curvity; which may be examined by suspending a long plumb-line at a convenient distance from the instrument; and by fixing the plane of the sector in a vertical position, and then observing, while the telescope is moved by the skrew along the limb,

whether the cross hairs appear to move along the plumb-line.

The axis $b f o$ (fig. 4.) may be elevated nearly parallel to the axis of the earth, by means of a small common quadrant; and its error may be corrected, by making the line of sight follow the circular motion of any of the circum-polar stars, while the whole instrument is moved about its axis, $b f o$, the telescope being fixed to the limb: for this purpose, let the telescope A be directed to the star a , when it passes over the highest point of its diurnal circle, and let the division cut by the nonius, be then noted: then, after twelve hours, when the star comes to the lowest point of its circle, having turned the instrument half round its axis, to bring the telescope into the position $m n$; if the cross hairs cover the same star supposed at b , the elevation of the axis $b f o$ is exactly right; but if it be necessary to move the telescope into the position $u v$, in order to point to this star at c , the arch $m u$, which measures the angle $m f u$ or $b f c$, will be known; and then the axis $b f o$ must be depressed half the quantity of this given angle, if the star passed below b , or must be raised so much higher, if above it; and then the trial must be repeated till the true elevation of the axis be obtained. By making the like observations upon the same star on each side the pole, in the six o'clock hour-circle, the error of the axis, toward the east or west, may also be found and corrected, till the cross hairs follow the star quite round the pole: for supposing $a o p b c$ to be an arch of the meridian (or in the second practice of the six o'clock hour-circle) make the angle $a f p$ equal to half the angle $a f c$, and the line $f p$ will point to the pole; and the angle $a f p$, which is the error of the axis, will be equal to half the angle $b f c$ or $m f u$, found by the observation; because the difference of the two angles $a f b, a f c$ is double the difference of their halves $a f o$ and $a f p$. Unless the star be very near the pole, allowance must be made for refractions.

ASTRONOMY, the science which treats of the heavenly bodies; their magnitudes, distances, motions, eclipses, conjunctions, &c.

Of all the sciences cultivated by mankind, astronomy is acknowledged to be the most sublime, the most interesting, and the most useful; or, by the knowledge derived from this science, not only the bulk of the earth is discovered, the situation and extent of the countries and kingdoms upon it ascertained, trade and commerce carried on to the remotest parts of

of the world, and the various products of several countries distributed for the health, comfort, and conveniency of its inhabitants; but our very faculties are enlarged with the grandeur of the ideas it conveys, our minds exalted above the low contracted prejudices of the vulgar, and our understandings clearly convinced, and affected with the conviction of the existence, wisdom, power, goodness, and superintendency of the Supreme Being!

From this branch of knowledge, we learn by what means or laws the Almighty carries on, and continues the admirable harmony, order, and connexion observable throughout the planetary system; and are led by very powerful arguments to form the pleasing deduction, that minds capable of such deep reflexes, not only derive their origin from that adorable Being, but are also incited to aspire after a more perfect knowledge of his nature, and a stricter conformity to his will.

By astronomy we discover that the earth is at so great a distance from the sun, that if seen from thence it would appear no bigger than a point, although its circumference is known to be 25,020 miles: yet that distance is so small compared with the distance of the fixed stars, that if the orbit in which the earth moves round the sun were solid, and seen from the nearest star, it would likewise appear no bigger than a point, although it is at least 162 millions of miles in diameter: for the earth in going round the sun is 162 millions of miles nearer to some of the stars at one time of the year than at another; and yet their apparent magnitudes, situations, and distances from one another still remain the same; and a telescope which magnifies above 200 times does not sensibly magnify them; which proves them to be at least four hundred thousand times farther from us than we are from the sun.

It is not to be imagined that all the stars are placed in one concave surface, so as to be equally distant from us; but that they are scattered at immense distances from one another through unlimited space; so that there may be as great a distance between any two neighbouring stars, as between our sun and those which are nearest to him; therefore an observer, who is nearest any fixed star, will look upon it alone as a real sun; and consider the rest as so many shining points, placed at equal distances from him in the firmament.

By the help of telescopes we discover thousands of stars which are invisible to the naked eye; and the better our glasses are, still the more become visible: so that we can set no limits either to their number or their distances.

The sun appears very bright and large in comparison of the fixed stars, because we keep constantly near the sun, in comparison of our immense distance from the stars: for a spectator placed as near to any star as we are to the sun, would see that star a body as large and bright as the sun appears to us: and a spectator as far distant from the sun as we are from the stars, would see the sun as small as we see a star, divested of all its circumvolving planets; and would reckon it one of the stars, in numbering them.

The stars being at such immense distances from the sun, cannot possibly receive from him so strong a light as they seem to have; nor any brightness sufficient to make them visible to us: for the sun's rays must be so scattered and dissipated before they reach such remote objects, that they can never be transmitted back to our eyes, so as to render these objects visible by reflection. The stars therefore shine with their own native and unborrowed lustre, as the sun does; and since each particular star, as well as the sun, is confined to a particular portion of space, it is plain that the stars are of the nature with the sun.

It is no ways probable that the Almighty, who always acts with infinite wisdom, and does nothing in vain, should create so many glorious suns, fit for so many important purposes, and place them at such distances from one another, without proper objects near enough to be benefited by their influences. Whoever imagines they were created only to give a faint glimmering light to the inhabitants of this globe, must have a very superficial knowledge of astronomy, and a mean opinion of the divine wisdom; since, by an infinitely less exertion of creating power, the Deity could have given our earth much more light by one single additional moon.

Instead then of one sun and one world only in the universe, as the unskillful in astronomy imagine, that science discovers to us such an inconceivable number of suns, systems, and worlds, dispersed through boundless space, that if our sun, with all the planets, moons, and comets belonging to it were annihilated, they would be no more missed out of the creation

tion than a grain of sand from the sea-shore; the space they possess being comparatively so small, that it would scarce be a sensible blank in the universe; although Saturn, the outermost of our planets, revolves about the sun in an orbit of 4884 millions of miles in circumference, and some of our comets make excursions upwards of ten thousand millions of miles beyond Saturn's orbit; and yet, at that amazing distance, they are incomparably nearer to the sun than to any of the stars, as is evident from their keeping clear of the attractive power of all the stars, and returning periodically by virtue of the sun's attraction.

From what we know of our system, it may be reasonably concluded that all the rest are with equal wisdom contrived, situated, and provided with accommodations for rational inhabitants.

To an attentive considerer, it will appear highly probable, that the planets, together with their attendants called satellites or moons, are much of the same nature with our earth, and destined for the like purposes: for they are solid opaque globes, capable of supporting animals and vegetables. Some of them are bigger, some less, and some much about the size of our earth. They all circulate round the sun, as the earth does, in a shorter or longer time, according to their respective distances from him; and have, where it would not be inconvenient, regular returns of summer and winter, spring and autumn. They have warmer and colder climates, as the various productions of our earth require; and in such as afford a possibility of discovering it, we observe a regular motion round their axis, like that of our earth, causing an alternate return of day and night, which is necessary for labour, rest and vegetation, and that all parts of their surfaces may be exposed to the rays of the sun.

Such of the planets as are farthest from the sun, and therefore enjoy least of his light, have that deficiency made up by several moons, which constantly accompany and revolve about them, as our moon revolves about the earth. The remotest planet has, over and above, a broad ring encompassing it, which, like a lucid zone in the heavens, reflects the sun's light very copiously on that planet: so that if the remoter planets have the sun's light fainter by day than we, they have an addition made to it morning and evening by one or more of their moons, and a greater quantity of light in the night time.

On the surface of the moon, because it is nearer us than any other of the celestial bodies are, we discover a nearer resemblance to our earth: for by the assistance of telescopes we observe the moon to be full of high mountains, large valleys, and deep cavities. These similarities leave us no room to doubt but that all the planets and moons in the system are designed as commodious habitations for creatures endowed with capacities of knowing and adoring their beneficent Creator.

Since the fixed stars are prodigious spheres of fire, like our sun, and at inconceivable distances from one another, as well as from us, it is reasonable to conclude they are made for the same purposes that the sun is; each to bestow light, heat, and vegetation, on a certain number of inhabited planets, kept by gravitation within the sphere of its activity.

What an august! what an amazing conception, if human imagination can conceive it, does this give of the works of the Creator! Thousands of thousands of suns, multiplied without end, and ranged all around us, at immense distances from each other, attended by ten thousand times ten thousand worlds, all in rapid motion, yet calm, regular, and harmonious, invariably keeping the paths prescribed them; and these worlds peopled with myriads of intelligent beings, formed for endless progression in perfection and felicity.

If so much power, wisdom, goodness, and magnificence, is displayed in the material creation, which is the least considerable part of the universe, how great, how wise, how good must he be, who made and governs the whole!

It is not to be doubted but astronomy was invented from the beginning of the world. As there is nothing more surprising than the regularity of those great luminous bodies, that turn incessantly round the earth, it is easy to judge, that one of the first curiosities of mankind was to consider their courses, and to observe the periods of them. But it was not curiosity only that induced men to apply themselves to astronomical speculations: necessity itself may be said to have obliged them to it: for if the seasons are not observed, which are distinguished by the motion of the sun, it is impossible to succeed in agriculture. If the times proper for making voyages were not previously known, commerce could not be carried on. If the duration of the month and year were not determined, a certain order

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order could not be established in civil affairs, nor the days allotted to the exercise of religion be fixed. Thus, as neither agriculture, commerce, polity, nor religion could dispense with the want of astronomy, it is evident that mankind were obliged to apply themselves to that science from the beginning of the world. Accordingly from the most early times men of genius and learning have appeared, in different countries and ages, who applied themselves to the study of astronomy, and made successive improvements therein, 'till the great Sir Isaac Newton, the glory of the nation, put the finishing hand, as we may say, to their labours, and carried the science to an amazing degree of perfection.

ASTRONOMY is sometimes divided into the *old* and the *new*.

The Old ASTRONOMY is that which supposes the earth fixed and quiescent in the center, and that the heavenly bodies perform their revolutions round it. This hypothesis is followed by Ptolemy in his *Almagest*, and thence called the *Ptolemaic System*. See the article *PTOLEMAIC System*.

The New ASTRONOMY is that which has been generally followed since the time of Copernicus, who revived the Pythagorean or true solar System. See *COPERNICAN System*.

ASTROSCOPE, the name of an instrument composed of two hemispheres, having the constellations delineated on their superficies.

ASTYAGES, son of Cyaxares, and the last king of the Medes. He began his reign five hundred and ninety-five years before the Christian era. During the pregnancy of his daughter Mandana, who was the wife of Cambyfes, king of Persia, he dreamt that he saw a vine spring out of her bosom, and extend its branches over all Asia; which according to the interpretation of the magi, signified the child she should bring forth would subdue many kings. Mandana was delivered of Cyrus, when the king gave the infant to Harpagus his confidant, with orders to put it to death; but Harpagus sparing its life, Astyages was so enraged when he came to know it, that he made him eat the flesh of his own son. Harpagus, to be rewarded, called in Cyrus, who was now grown up, and who dethroned his grandfather, about five hundred and fifty-nine years before Christ.

ASYLUM, a sanctuary, a place of refuge, or protection. Some pretend, the

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first asylum in Greece was that established by order of the oracle of Jupiter Dodonæus, who commanded the Athenians to grant their lives to all those who fled for refuge into the Areopagus, or to the altars of the goddesses. But others say, the first asylum was built at Athens by the Heraclides, and was a refuge for those who fled from the oppression of their fathers. This privilege began to be enjoyed by the Christian churches about the time of Constantine; but whether that prince made any laws concerning it, is doubted by learned men; for none appear that are older than the time of Theodosius. At first, only the altar and inward fabric of the church was a place of refuge; but afterwards any outer buildings, or precincts of the church, had the same privilege granted them; such as the houses or lodgings of the bishop and clergy, gardens, baths, courts, and cloysters; and, in after-ages, this exemption was extended to the graves and sepulchres of the dead, to crosses, schools, monasteries, and hospitals. This privilege, originally, was not intended to patronize wickedness, or screen the guilty from justice: but as a refuge for the innocent, the injured, and the oppressed; or, in doubtful cases, to give men protection, till they might obtain an equitable and fair hearing; in all such cases they were allowed thirty days protection. But that no one might expect this indemnity who had not a just and legal title to it, several crimes and cases were excepted by law, for which the church could grant no protection.

ASYMPTOTES, in geometry, straight lines which constantly approach nearer and nearer to the curve they are said to be asymptotes of: but if they and their curve are indefinitely continued, they will never meet; or asymptotes are tangents to their curves at an infinite distance. Two curves are also said to be asymptotical, when they continually approach to one another, but if infinitely continued, can never meet; as two parabolas that have their axis placed in the same right line, are asymptotical to each other. Of curves of the first order, that is, the conic sections, only the hyperbola has asymptotes, being two in number. All curves of the second order have at least one asymptote; but they may have three: and all curves of the fourth order may have four asymptotes. The conchoid, cissoid, and logarithmic curve, have each one asymptote. See *CURVE*, *HYPERBOLA*, &c.

ASYMPTOTIC, something relating to asymptotes.

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• **ASSYNDETON**, in grammar, a figure which omits the conjunctions in a sentence.

• **ATALANTA**, in fabulous history, the daughter of Schœneus, king of Scyros, she was sought for in marriage by several young princes, to whom her father had promised her, on condition they could conquer her in a race. Hippomenes alone had the happiness to obtain her; for, by the advice of Venus, he threw, as they were running, three golden apples out of the course, and Atalanta running out of his way to take them up, Hippomenes gained the prize; but afterwards they neglecting to pay their offerings to Venus, she showed her resentment by insatuating them to such a degree, that they lay together in the temple of Cybele, who, for that profanation turned them into lions.

• **ATCHIEVEMENT**, in heraldry, the arms of a person, or family, together with all the exterior ornaments of the shield, as helmet, mantle, crest, scrolls, and motto, together with such quarterings as may have been acquired by alliances, all marshalled in order.

• **ATE**, in heathen mythology, a Goddess, who perverted men's understanding, clouded their reason, and delighted herself in involving them in misfortunes and engaging them in quarrels. There was no way to be secured from her, but by having recourse to the Lites, the daughters of Jupiter.

• **Ate**, according to some, is the evil actions committed by mankind, which are the real sources of all our troubles and misfortunes; and the Lites are the prayers we ought to use in our calamities.

• **A TEMPO GIUSTO**, in music, signifies to sing or play in an equal, true, and just time.

• **ATHAMADULET**, the prime minister of the Persian empire, as the grand vizier is of the Turkish empire.

• **ATHANASIUS** (St.) bishop of Alexandria, was one of the greatest defenders of the faith against the Arians, and was born in Egypt. He followed St. Alexander to the council of Nice, in 325, where he disputed against Arius, and the next year was made bishop of Alexandria, but, in 335, was deposed by the council of Tyr. The emperor, two years after, gave orders that he should be restored to his bishopric; but on his return to Alexandria, his enemies brought fresh accusations against him, and chose Gregory of Cappadocia to his see, which obliged Athanasius to go to Rome to reclaim it of Pope Julius.

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He was there declared innocent, in a council held in 342, and in that of Sardica in 347; and two years after was restored to his see by order of the emperor Constantine; but after the death of that prince, he was again banished by the emperor Constantius, which obliged him to retire into the deserts. He addressed to the emperor Julian a letter, in which he proposed that the Nicene creed should be the standard of the orthodox faith, and condemned those who denied the divinity of the Holy Ghost. He was also banished by Valens, in 367, and afterwards recalled. St. Athanasius died on the 2d of May, 373.

His works principally contain a defence of the mystery of the Trinity, and of the incarnation and divinity of the Word and Holy Spirit. It is now generally allowed by the learned, that St. Athanasius was not the author of the creed, which bears his name, it not being mentioned, by any author, for several hundred years after his death.

• **ATHANASIAN CREED**, that supposed to be composed by Athanasius. See CREED.

• **ATHANOR**, in chemistry, a kind of fixed and large digesting furnace, made with a tower, contrived to keep a constant moderate heat for a considerable time, which may be increased or diminished at pleasure, by shutting the registers.

• **ATHEIST**, one who denies the existence and providence of God, and consequently has no religion at all, true or false.

The word is formed from the Greek, *alpha*, priv. and *theos*, God.

There is no room to doubt, whether there ever were thinking men, who have actually reasoned themselves into the disbelief of a deity. Among the ancients, indeed, we read of Theodorus of Cyrene, and Diagoras the Melian, both professed atheists; the latter of whom set up a school of atheism at Athens, for which he was prosecuted by the Athenians; but by flying out of the country, he escaped the punishment of death intended for him. About twenty years before, they had proceeded against Protagoras, another philosopher, for only doubting of the being of God. Both these had been the scholars of Democritus, the first founder of the atomical philosophy, which is in its consequences an atheistical scheme: for though it allows the being of a God in name, yet by denying his providence, it denies his existence in effect. It is however probable, that these philosophers were

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were not, properly speaking, atheists; but branded as such by the pagans, for denying the divinity of their false gods.

Plato distinguishes three sorts of atheists: such as deny absolutely that there are any gods; others who allow the existence of the gods, but deny that they concern themselves with human affairs, and so disbelieve a providence; and lastly, such as believe in the gods, and a providence, but think that they are, very easily appeased, and remit the greatest crimes for the smallest supplication. The first of these are only the true atheists, in the strict and proper sense of the word.

* **ÆTHELSTAN**, or **ÆTHESTAN**, (son of Edward surnamed the Elder, king of the West Saxons, and of Edgiva, a shepherd's daughter,) succeeded his father in 924; he defeated Anlaf, king of Northumberland, whose army consisted of Scots, Picts, Danes, and Norwegians, and obtained such reputation, that the emperor Henry, surnamed the Fowler, sent to demand one of his sisters in marriage for his son Otho: Hugo, king of the Franks, also desired another for his son, and Lewis, prince of Aquitaine, sent an embassy to desire a third for himself. He was equally successful against the Welsh, for having beaten them in the field, he caused Ludwal, king of Wales, with his petty princes, to meet him at Hereford, where they did him homage, and promised to pay him a yearly tribute. The greatest blemish in the reign of Æthelstan, is supposed to be his treatment of his brother Edwin, whom he suspected of having a design to deprive him of his crown; for it is certain, he caused him to be put on board a leaky ship, with his armour bearer and page, when the young prince, unable to bear the severity of the weather and want of food, drowned himself. Æthelstan, however, formed many wise laws, and rendered himself much admired on account of his wisdom, wealth, and the extent of his dominions. He reigned about sixteen years, and died at Gloucester in 942.

* **ATHEMENES**, in fabulous history, son of Catreus, king of Crete, who was informed by an oracle that he should kill his father, he therefore left him, and retired to Rhodes, where he built the temple of Atamyrius, upon a mountain of the same name; when his father coming thither in search of him, he killed him without knowing him.

ATHEROMA, in surgery, a tumour without pain, or discoloration of the skin,

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containing, in a membranous bag, matter resembling pap, intermixed with hard and stony particles. These tumours are easily cured by incision.

ATHLETÆ, in antiquity, persons of strength and agility, properly disciplined for performing in the public games.

Under the name *athletæ* were comprehended wrestlers, boxers, runners, leapers, throwers of the discus, and those practised in other exercises exhibited at the Olympic, Pythian, and other solemn games.

ATHWART, in navigation, *a-cross*; as *athwart hawse*, a ship is said to lie in that position when she bears with her side against another's stem.

ATHWART *the Fore-foot*, is a shot generally so directed to stop a ship, and make her remain with her sails flacked, till she is examined; and is levelling the shot so that it may fall directly under the prow or stem.

ATHWART Ships, reaching from one end to the other.

ATLANTIDES, in astronomy, the same with *Pleiades*. See *PLEIADES*.

* **ATLAS**, in fabulous history, the son of Jupiter and Clymene, and the brother of Prometheus. On the division of his father's dominions, *Mauritius* fell to his share, on which he gave his own name to the mountain which is still called *Atlas*. He was much skilled in astronomy, and by his inventing the sphere, gave rise to the fable of his supporting the heavens on his shoulders.

Ovid says, that *Atlas* was the son of *Japetus* and *Asia*; that he was the proprietor of the garden which bore golden fruit; but being warned by the oracle of *Themis*, that he should suffer from one of Jupiter's sons, he forbade all foreigners his court or presence. *Percius* however boldly appeared before him, but was ordered to retire with menaces in case of disobedience. When the hero presenting his shield, with the dreadful head of *Medusa*, transformed him into the mountain which is still called by his name.

ATLAS, in anatomy, the name of the first vertebra of the neck, or that which supports the head.

ATLAS, in architecture, a name given to those whole or half figures of men, sometimes used instead of columns or pilasters to support any member in architecture. They are sometimes called *Telamones*.

ATLAS, in matters of literature, a book of universal geography, containing maps of all the known parts of the world.

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ATMOSPHERE, in physiology, the vast body or collection of air that surrounds the earth to a very considerable height.

Height of the ATMOSPHERE.—The modern naturalists have been very solicitous to determine the height of the atmosphere; a problem very difficult to be solved, because of the elasticity of the air, which renders its density different at different altitudes from the earth's surface: for the lower parts of the air, being pressed by the weight of the superior parts, must approach nearer to each other; and this approximation will be proportional to the weight of the incumbent air; whence it follows, that the density of the air is greatest at the earth's surface, and decreases upwards in a geometrical progression to the altitudes taken in arithmetical progression. It must also be observed that the rarity of the air cannot proceed *ad infinitum*, but has its limit from gravity: for though the rarefaction of the air be still greater, as its distance from the surface of the earth increases; its spring at length will be so weakened, that the force by which the particles tend upwards from those next below them, will be less than the force of gravity, by which they tend downwards; consequently the rarefaction of the atmosphere must be bounded where those opposite forces are equal to each other. Were the atmosphere of an equal density throughout, the height of the atmosphere might be easily determined; for it has been found, by experiment, that the length of a column of air seventy-two feet high, is equal in weight to a column of water of the same base, and one inch in height; consequently the density of air is to that of water as 1 to 864. It has also been found, by experiment, that the weight of a column of air extending to the top of the atmosphere, is equal in weight to a column of water of the same base, and 32 feet or 384 inches high. If therefore we multiply 864 by 384, we shall have 331776 inches, or something above five miles, for the height of the atmosphere, provided its density was every where the same.

But since the density of the atmosphere decreases with the pressure, it will be more rarefied and expanded the higher we go; and therefore the altitude of the atmosphere becomes indefinite, terminating in pure æther. One principal effect of the air, however, being the refraction of light, whose particles are the smallest of any we know of in nature, it is

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reasonable to fix the boundary of the atmosphere in the altitude where it begins to have the power of producing this least effect in nature, viz. the refracting a ray of light.

Pressure of the ATMOSPHERE.—It has been already observed, that the weight of a column of air, extending to the boundary of the atmosphere, is equal to the weight of a column of water of the same base, and 32 feet high; and hence the weight of any part, or of the whole atmosphere may be determined: but this fluid is so subject to change, that it is hardly possible to find an equal quantity of air at different times, in the same place, of equal weight. This variation is very apparent when there is any alteration in the meteors in the air: for rain, sudden fierce showers, fogs, hail, snow, lightning, thunder, winds, from various quarters, storms, whirlwinds, drought, &c. are certain indications that the atmosphere will soon become of a different weight. The different seasons of the year also produce an almost incredible variation. Hence an infinite number of effects, depending on the action of the gravity of the air, are in a perpetual vicissitude and inconstancy. Accurate observations, however, continued almost a century, have at last enabled us to determine the greatest and least gravity of the air known in Europe: for it has been found that the greatest weight of the atmosphere is in equilibrio with 31 inches of mercury in the barometer, while the least is only equal to 27; so that the difference is almost a tenth part of its greatest weight; and between those limits the variation of the atmosphere's weight is included. We may therefore take 29 inches for the mean altitude of the mercury, and consequently its weight for the mean weight of a column of air of the same base. See AIR. Hence the difference of pressure on the body of a man, allowing it to contain $14\frac{1}{2}$ square feet, will be nearly equal to 3980 pounds troy. This remarkable difference must greatly affect the animal functions, and consequently our health. If a person, for instance, be asthmatical, he will find his disorder increase with the levity of the air; for since a pure, dense, elastic air is alone capable of distending his lungs in respiration, it will be less capable of performing the same office, when its weight and elasticity were decreased; and consequently the valetudinarian will find his difficulty of breathing increase in proportion.

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proportion. It is common to consider the air as heaviest in foggy weather : but the contrary is true ; for the air is actually heaviest in fine clear weather. The reason for this error flows from our mistaking the cause. When the fibres and nerves are braced and constringed by the great pressure of the air, the blood vessels act with their full power and natural vigour, a proper velocity is given to the fluids, and a greater momentum to overcome obstructions in the capillaries. Hence we find ourselves alert and light, and thence fancy that the air is light also. On the contrary, when this pressure is lessened by near 3980 pounds, the fibres are relaxed, the contractile force of the vessels diminished, a languid circulation ensues, obstructions, &c. happen, and produce agues, fevers, aches, &c. in some ; and in all, a sort of indolence, or gloomy inactivity, and heaviness ; consequences which we imagine result from the heaviness of the air ; whereas they, in reality, flow from its levity.

Refractive Power of the ATMOSPHERE. It is the atmosphere that makes the face of the heaven or firmament appear lucid and bright while the sun shines ; for if no atmosphere surrounded and involved the earth, only that part of the heavens in which the sun was placed, would appear to shine ; and a spectator, if he should turn his back to the sun, would immediately perceive it as dark as night ; and even in the day-time, while the sun shined, the least stars would be seen as plainly as in the darkest night, because there would be no substance to reflect the sun's rays to our eyes ; and all the rays that do not fall upon the surface of the earth passing by us, would either illuminate the planets and stars, or spreading themselves out in infinite space, would never be reflected back to us. But since there is an atmosphere surrounding the earth, which is strongly illuminated by the sun, it reflects the light back to us, and causes the whole heavens to shine with such splendor, as to obscure the faint light of the stars, and render them invisible.

ATOM, in philosophy, an indivisible particle, or corpuscle of matter. Atoms are properly the *minima natura*, the least particles into which bodies are divisible ; and are conceived to be the first rudiments, or component parts of all physical magnitude ; or the pre-existent and incorruptible matter whereof bodies are formed. The notion of atoms rises from a supposition, that matter is not divisible *ad infinitum*. And hence the Peripatetics are led to deny

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the reality of atoms. An atom, say they, either has parts, or it has not : if it has no parts, it is a mere mathematical point ; if it has, these parts must also consist of others, and so on to infinity. But this is to recede from the genuine characters of atoms, which are not esteemed indivisible from their want of parts (for all physical magnitude must have three dimensions, length, breadth, and thickness ; and all extension is divisible) ; but they are indivisible on account of their solidity, hardness, and impenetrability, which preclude all division, and leave no vacancy for the admission of any foreign force to separate or disunite them.

ATOMICAL Philosophy, the doctrine of atoms ; or the method of accounting for the origin and formation of things from the supposition of atoms being endued with gravity and motion.

ATRA BILIS, black bile, among the ancient physicians, implied one of the humours of the body ; the moderns call it melancholy. See *MELANCHOLY*.

A-TRIP, in navigation, a ship's top-sails are said to be a-trip when they are hoisted up to their full extent, or to the mast-head.

A-TRIP, the anchor is so called, when the ship, in a perpendicular direction, drags or heaves it out of the ground.

ATROPHY, in physic, an universal consumption, proceeding from the whole habit of body, and not from any distemper of the entrails ; it is attended with no remarkable fever, and is natural in old age. An atrophy is either nervous, or the effect of immoderate evacuation. A nervous atrophy owes its origin to a bad and morbid state of the spirits, or to a weakness or destruction of the tone of the nerves. An atrophy from inanition proceeds by a preternatural defect or subtraction of the nutritious juice, which varies according to the different outlets of the body, whether by nature or art. See *CONSUMPTION*.

ATTACHMENT, in law, the taking or apprehending a person by virtue of a writ or precept. It is distinguished from an arrest, by proceeding out of a higher court by precept or writ ; whereas the latter proceeds out of an inferior court by precept only. An arrest lies only on the body of a man ; whereas an attachment lies often on the goods only, and sometimes on the body and goods. An attachment by writ differs from distress, in not extending to lands, as the latter does ; nor does a distress touch the body as an attachment does. In the common acceptation, an attachment implies the apprehension of a man's

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a man's body, in order to his answering the action of the plaintiff.

ATTACHMENT *out of the Court of Chancery* is obtained upon an affidavit made, that the defendant was served with a subpoena, and made no appearance; or it issueth upon not performing some order or decree. Upon the return of this attachment by the sheriff, *quod non est inventus in balliva sua*, another attachment, with a proclamation, issues; and if he still refuses to appear, a commission is issued.

ATTACHMENT of Privilege, is by virtue of a man's privilege to call another to that court whereto he himself belongs, and in respect whereof he is privileged to answer some action.

Foreign ATTACHMENT, an attachment of money or goods found within a liberty or city, to satisfy some creditor within such liberty or city.

By the custom of London, and several other places, a man can attach money or goods belonging to his debtor, in the hands of a stranger, to satisfy himself.

ATTACK, a violent attempt upon any person or thing, an assault, or the act of beginning a combat, or dispute.

ATTACK, a military term, is an effort made to force a post, break a body of troops, &c.

ATTACK of a Siege, is a furious assault made by the besiegers with trenches, covers, mines, &c. in order to make themselves masters of a fortress, by storming one of its sides. If there are two or three attacks made, at the same time, there should be a communication betwixt them.

ATTAINDER, in law, is when a person has committed felony or treason, and sentence is passed upon him for the same. The children of a person attainted of treason, are thereby rendered incapable of being heirs to him, or to any other ancestor; and if he were noble before, his posterity are degraded and made base: nor can this corruption of blood be salved, but by an act of parliament, unless the sentence be reversed by a writ of error.

Attainder is two-fold, either by appearance, or by process.

ATTAINDER by appearance, is either by battle, by confession, or by verdict. By battle, is when the party appealed by another, choosing rather to try the truth by combat than by jury, is vanquished. Attainder by confession, is either by pleading guilty at the bar, and not putting himself upon trial by the jury, or before the coroner in sanctuary, where, in ancient times, he was obliged to renounce the realm.

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ATTAINDER by verdict, is when the prisoner at the bar pleads not guilty to the indictment, and is pronounced guilty by the jury.

ATTAINDER by process, or attainder by default, is where a party flies, or does not appear after being three times publicly called in the county court, and at last, upon his default, is pronounced guilty.

Bill of ATTAINDER, a bill brought into parliament for attainting, condemning, and executing a person for high treason.

ATTAINT, in law, a writ against a jury that have given a false verdict in any court of record, in a real or personal action, where the debt or damages amount to above forty shillings. If the verdict be found false, the judgment, by common law, was, that the jurors meadows should be plowed up, their houses broken down, their woods grubbed up, all their lands and tenements forfeited, &c. but by statute the severity of the common law is mitigated where a petty jury is attainted, and there is a pecuniary penalty appointed. But if the verdict be affirmed, such plaintiff shall be imprisoned and fined.

ATTAINT, among farriers, a knock or hurt in a horse's leg, either from a blow with another horse's foot, or from an over-reach in frosty weather, when a horse being rough-shod, &c. strikes his hinder feet against his fore-legs.

ATTAINTED, in law, is applied to a person found guilty of any crime or offence, especially of treason or felony, by due course of law.

ATTENTION, the applying either the ear or the mind assiduously to any thing said or done, in order to understand it.

To increase attention we must banish every thing that may interrupt it, and seek every means to strengthen and assist it. All, therefore, who would apply themselves strenuously to the discovery of truth, should be careful to avoid strong and immoderate sensations, a great noise, a glaring light, excess of grief, or joy, &c. they ought to keep their imagination free from any thing that weakens or disquiets the mind. They ought especially to controul their passions, which, let loose, make very powerful impressions on the soul and body, and exercise a strange dominion over both; yet the passions and the senses may be made of use to preserve our attention; as, for instance, a desire of discovering truth, rendering ourselves useful to our neighbours, and improving ourselves, is highly laudable, and tends to fix our attention;

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attention; but our attention is fixed also by motives much less generous and noble, a thirst of fame, desire of riches, nay, even vanity. Attention is, in short, a habit of the mind, and the power of it may be acquired, but depends in some measure on the constitution.

ATTENUANTS, in pharmacy, medicines which resolve the viscosity of the humours in the human body, and promote their free circulation, and at the same time discharge all noxious matter. The word is formed from the Latin, *ad*, and *tenuo*, to render small.

ATTERBURY (FRANCIS) bishop of Rochester, was the son of Dr. Lewis Atterbury, and was born at Middleton, near Newport-Pagnel, in Buckinghamshire. He was educated at Westminster school, and in 1680, elected a student of Christ-Church college, Oxford, where he soon distinguished himself by the elegance and vivacity of his wit, and his fondness for polite learning. On his taking holy orders, he so distinguished himself by the elegance of his sermons, that he was appointed one of the chaplains in ordinary to king William and queen Mary. He exerted himself in the controversy with the papists, by writing an excellent defence of Luther; and engaged in several controversies, particularly with Dr. Wake, in which he displayed so much learning, ingenuity, and zeal, for the interest of his order, that the lower house of convocation returned him thanks, and the university of Oxford complimented him with the degree of doctor of divinity. Upon the accession of queen Anne in 1702, he was appointed one of her majesty's chaplains in ordinary; in 1704 he was advanced to the deanry of Carlisle; in 1707 he was appointed one of the canons residentiary of Exeter; in 1712 he was made dean of Christ-Church, and the next year bishop of Rochester. During the rebellion in Scotland, in the first year of George the First's reign, he refused to sign the declaration of the bishops, testifying their abhorrence of that rebellion, and an exhortation to the clergy and people under their care, to be zealous in the discharge of their duties to his majesty king George. Dr. Atterbury constantly opposed the measures of the court in the house of lords, and drew up some of the most violent protests with his own hand. On the 24th of August 1722, he was apprehended on suspicion of being concerned in a plot in favour of the Pretender, and carried before a committee of the privy council, who committed him prisoner to the Tower. On the 23d of

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March 1722-3, a bill was brought into the house of commons for inflicting certain pains and penalties on him, "for being principally concerned in forming, directing, and carrying on a wicked and detestable conspiracy, for invading these kingdoms with a foreign force, and for raising insurrections and a rebellion at home, in order to subvert our present happy establishment in church and state, by placing a popish pretender on the throne." This bill being passed by the commons, was, on the 9th of April, sent up to the house of lords, for their concurrence, and at the first reading of it bishop Atterbury was brought to Westminster, to make his defence, when he had two counsel, and pleaded for himself in a long speech. In short, the bill was passed by the lords, by a very great majority, and was signed by the king, who expressed great concern at there being just cause of dooming to perpetual banishment a bishop of such eminent parts and learning. On the 18th of June, 1723, he embarked and landed at Calais, from whence he went to Brussels, and afterwards to Paris. He there wrote a vindication of himself, bishop Smalridge, and Dr. Aldrich, from a charge brought against them by Mr. Oldmixon, of altering and interpolating the lord Clarendon's History of the Rebellion. He died at Paris, Feb. 15, 1731, and his body was brought to England, and interred in Westminster abbey. His sermons are printed in four volumes octavo.

ATTESTATION, the act of affirming, or witnessing the truth of something, especially in writing.

ATTIC, something relating to Attica, or the city of Athens. Thus, *attic fair*, *sales atticæ*, implies a delicate and poignant species of wit and humour peculiar to the Athenian writers.

ATTIC, in architecture, a sort of building, the roof or covering of which is concealed; so called from the Athenian buildings, which were in general of this form.

ATTIC Order, in architecture, a small order raised upon a large one, by way of crowning, or to finish the building.

ATTIC Base. See **BASE**.

ATTIRE, in hunting, the head or horns of a deer.

ATTITUDE, in painting and sculpture, the gesture of a figure or statue; or such a disposition of their parts as serves to express the action and sentiments of the person represented.

ATTOLLENS, in anatomy; see **LEVATORES** and **ELEVATORES**.

ATTORNEY

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ATTORNEY, in a general sense, one appointed by another to do something in his stead.

ATTORNEY at Law, a person retained to prosecute or defend a law-suit. Attornies, being properly those who sue out writs, or process, or commence, carry on, and defend actions, in any of the courts of common law, are distinguished from solicitors, as the latter do the like business in the courts of equity; and none are admitted, either as an attorney or solicitor, unless they have served a clerkship of five years, being enrolled, and taken the oath in that case provided; and the judges of their respective courts are required to examine their several capacities. By a late order of all the judges, all attornies are to be admitted of some inns of court or chancery (except house-keepers in London and Westminster, &c.) and no attorney shall put himself out of that society, into which he is admitted, till he is admitted to some other society, and deliver a certificate thereof; and all attornies are to be in common at the times ordered by the society to which they belong, otherwise shall be put out of the roll of attornies. Attornies may be punished for ill practices; and if an attorney, or his clerks, of which he must have but two at one time, do any thing against the express rules of the court, he or they may be committed. Attornies are liable to be punished for the neglect of a client's cause. Attornies have the privilege to sue and be sued only in the courts of Westminster, where they practise; and they shall not be chosen into offices against their will.

ATTORNEY of the Duchy of Lancaster, the second officer in that court.

ATTORNEY-GENERAL, a great officer under the king, created by letters patent, whose office is to exhibit informations, and prosecute for the crown in criminal causes; and to file the bills in the exchequer, for any thing concerning the king in inheritance or profits. To him come warrants for making of grants, pardons, &c. his salary from the crown is 1000*l.* per ann.

ATTRACTION, in natural philosophy, an indefinite term applicable to all actions whereby bodies tend towards one another, whether by virtue of their weight, electricity, magnetism, impulse, or any other latent power. Philosophers generally reckon four different sorts of attraction, viz. that of cohesion, of electricity, of magnetism, and gravitation.

ATTRACTION of Cohesion, is peculiar to the component particles of bodies; by

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virtue of which they are firmly connected and held together. The laws and properties of this attraction are the following: 1. It is very discernible and most powerful in corpuscles, or the smallest particles of matter. 2. It is mutually exerted between those particles; or they mutually attract and are attracted by each other. 3. The sphere of attraction, or extent of this power, is greater in some particles of matter than in others, but very small at the outermost; for, 4. this power is insensible in solid bodies in the least sensible distance, acting as it were only in contact; and, therefore, 5. it must be nearly proportional to the quantity of contiguous surfaces; or the parts of the body cohere most strongly, whose touching surfaces are largest. 6. This power must decrease, as the squares of the distances increase; because it must be supposed to issue from each particle in right lined directions. 7. Where the sphere of attraction ends, there a repelling power begins; by which the particles, instead of attracting, repel and fly from each other. 8. By this power the small portions or drops of a fluid, conform themselves to a spherical figure.

The first and second of these properties are evident from various experiments; as the sudden union of two contiguous drops of mercury, water, &c. Thus the drops, plate VII. fig. 5. will, as soon as they touch each other, run together, and form one large drop. The strong adhesion of two leaden balls, which touch by polished surfaces; as also of glass panes, and in capillary tubes; the rising of water by the sides of a glass vessel, and into tubes of sand, ashes, sugar, sponge, and all porous substances.

The third property is proved by the sticking or adhering of water to substances, which by mercury are left dry. The fourth and fifth properties are evinced by the hyperbolic curve, formed by the superficies of a fluid ascending between glass-planes touching each other on one side. The sixth property is evident. The seventh appears from the ascent of a steam, or vapour, from humid or fluid bodies; and the eighth property is manifest by drops of water falling on dust.

From this account of the attraction of cohesion, we have a rational solution of several very curious and surprising phenomena; as why the parts of bodies adhere and stick so firmly together; why some are hard, others soft; some fixed, others fluid; some elastic, others void of elasticity: all which arise from the different figures of the particles, and the greater or

lesser degree of attraction consequent thereupon. On this principle, we account for the manner how plants imbibe the nutritive juices by the fibres of the roots; also for the rise of the sap in vegetables, and for the whole œconomy of vegetation. Hence the rationale of the various secretions of fluids by the glands, and their wonderful circulation through the fine capillary vessels. Hence also the reason of soldering and gilding metals; also of melting, or fusion by heat. Hence also the exhalation of vapours by the heat of the sun or fire; the aggregation of aqueous particles in the air, forming the drops of rain. We hence see the reason of distillation, filtration, dissolution, digestion, sublimation, precipitation, crystallization, and the other operations of chemistry and pharmacy. Lastly, it is by this power of attraction and repulsion, that we are to account for those wonderful phenomena of subterranean ascensions and exfoliations; of volcanos and earthquakes; of hot springs, damps, and suffocating exhalations in mines, &c. See **COHESION**.

The second species of attraction is that of electrical bodies, as glass, amber, sealing-wax, jet, &c. for the properties of which, see **ELECTRICITY**.

For the properties of the third kind of attraction, see **MAGNET** and **MAGNETISM**.

The fourth kind of attraction, viz. that of gravitation.

All philosophers agree that there is a certain force by which the primary planets tend towards the sun and the secondary planets towards their primary.

This Sir Isaac Newton calls attraction, which may be reckon'd a primordial quality of matter; nor is it perhaps possible to explain the celestial bodies on the principle of impulsion. Sir Isaac seems to waver in some parts of his works concerning the nature of attraction, and admits of an impelling power; there is reason to think it was a kind of tribute he chose to pay to the prejudice, or rather the general opinion of the age he lived in, than his real sentiment; because he permitted Mr. Cotes, his disciple, to adopt attraction without reserve, as may be seen in the preface to his second edition of his *Principia*; and this preface was written under the eye of Sir Isaac, and had his approbation. Besides, Sir Isaac admits a reciprocal attraction among the celestial bodies, and this very opinion seems to suppose attraction a quality inherent in bodies; but be that as it may, accord-

ing to Newton, the attractive force decreases in an inverse ratio to the squares of the distances: this learned philosopher has solved a great part of the celestial phenomena on this single principle, and all who have tried to account for them since, on the same principle, have succeeded to a surprising degree of exactness. The motion of the moon's apogee, which was pretended to be irreconcilable to this hypothesis, is now found to be entirely conformable to it, and does honour to the Newtonian system. All the other inequalities of the motion of the moon, which are very considerable, may also easily be accounted for by the system of attraction, and demonstrated by calculation.

All the phenomena hitherto observed, demonstrate a mutual tendency of the planets towards each other; wherefore, we must admit this for a truth on its own evidence: and, though we should be forced to acknowledge this a primordial and inherent quality in matter, we may venture to say, that the difficulty of conceiving such a cause would be a very weak argument against its existence. No one doubts but that a body which meets another, communicates motion to it; but have we an idea of the power by which this communication is made? The vulgar eye here, perhaps, penetrates as far as that of the philosopher. No body is surprized at seeing a stone fall; they have always seen it; philosophers, well acquainted with the effects of impulsion, have never troubled themselves about the cause which produces them. Now, if every body which meets another should stop without communicating motion to it, a philosopher would be as much astonished at this phenomenon, as a common man at seeing a heavy body suspended in the air. If we understood wherein the impenetrability of matter consists, we should not perhaps be clearer about the nature of the impelling power. We only see that, in consequence of this impenetrability, the shock of one body against another must be followed by some change, either in both or one of the bodies; but we know not, and perhaps never shall, by what power this change is effected; and why, for instance, a body which strikes against another should not always continue at rest after the shock, without communicating a part of its motion to the body which resists it. It is apprehended attraction contradicts the notion we have of matter; but, if we enquire attentively, we shall find these ideas no ways repugnant. The universe is concealed from

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us by a curtain, we see only some part of it; were that drawn up on a sudden, we should be surprized to see what passes behind it: besides, the pretended inconsistency of attraction, with the nature of matter, is solved by admitting an intelligent being, who could as easily ordain bodies to act on each other at a distance as in contact.

ATTRACTIVE, having the power or property of attraction.

ATTRIBUTE, in a general sense, a quality belonging to some person or thing. Thus, understanding is an attribute of the mind, and extension an attribute of body.

ATTRIBUTES, in theology, the several qualities or perfections of the divine nature, which constitute his essence.

ATTRIBUTES, in logic, the predicates of any subject, or what may be affirmed or denied of any thing.

ATTRIBUTES, in painting and sculpture, the symbols added to several figures to intimate their particular office and character. Thus the eagle is the attribute of Jupiter; a caduce of Mercury; a club of Hercules; a balance of Justice: &c.

ATTRITION, in a general sense, the rubbing or striking of bodies one against another, so as to throw off some of their superficial particles.

The grinding or polishing of bodies is performed by attrition, the effects of which are heat, light, fire, and electricity.

ATTRITION is often used for the friction of such simple bodies as do not wear from rubbing against one another; but whose fluids are, by that motion, subjected to some particular determination; as the various sensations of hunger, pain, and pleasure, are said to be occasioned by the attrition of the organs formed for such impressions.

* **ATYS**, in fabulous history, a youth esteemed by Cybele, the mother of the Gods, who made him her priest, on condition that he should preserve his chastity; but he breaking his vow by lying with the nymph Sangaritis, the goddess punished him, by throwing him into a phrenzy, in which he castrated himself, when Cybele being filled with compassion, turned him into a pine tree.

AUCTION. *Auctio*, a public sale, very much in use for estates, household goods, &c. By this method of sale, the highest bidder is always the buyer.

* They have a very different method of selling by auction in Flanders; it is the first bidder that is there the purchaser. The auctioneer puts up the article at what

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he thinks the full value, and gradually lowers the sum till some person bids, and the first bidder is always the buyer. We cannot but approve of this method of selling by auction, for when the article comes down to a moderate price, a person who is willing to become a purchaser, is sure to bid, lest another should speak before him; and there is no bidding a second time as in our sales by auction.

AUDIENCE, in a general sense; see **HEARING**.

AUDIENCE given to ambassadors, the ceremonies observed in courts, at the admission of ambassadors, or public minister. In England, audience is given to ambassadors in the presence-chamber; to envoys and residents, in a gallery, closet, or in any place where the king happens to be. Upon being admitted, as is the custom of all courts, they make three bows, after which they cover and sit down; but not till after the king is covered and sat down, and given them the sign to put on their hats. When the king does not chuse to have them covered, and sit, he himself stands uncovered; which is taken as a slight.

AUDIENCE, the name of an ecclesiastical court held by the archbishop of Canterbury, wherein differences upon elections, consecrations, institutions, marriages, &c. are heard.

AUDIENDO & TERMINANDO, a writ, or more properly a commission, directed to certain persons, when any riotous assembly, insurrection, &c. is committed in any place, for appealing it, and punishing the offenders.

AUDIT, a regular hearing and examination of an account by some proper officers appointed for that purpose.

AUDITA QUERELA, a writ that lies usually where one is bound in a statute staple, or recognizance, when a person has any thing to plead, but hath not a day in a court for pleading it; or where a judgement is given for debt, and the defendant's body in execution; then if he have a release, or other sufficient cause to be discharged therefrom, but wants a day in court to plead the same, this writ may be granted him against the person that has recovered, or against his executors. This writ is granted by the lord chancellor, upon view of the exception suggested to the judges of either bench, willing them to grant summons to the sheriffs of the county where the creditor is, for his appearance, at a certain day before them.

AUDITOR;

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AUDITOR, in a general sense, a hearer, or one who listens and attends to any thing.

AUDITOR is also used for several officers appointed to audit. See **AUDIT**.

AUDITOR, an officer of the king, or some other great person, who, by examining yearly the accounts of the under officers, makes up a general book, with the difference between their receipts and charges, and their allowances or allocations.

AUDITOR of the Receipts, an officer of the exchequer who files the tellers bills, makes an entry of them, and gives the lord-treasurer a certificate of the money received the week before.

AUDITORS of the Revenue, or of the Exchequer, officers who take the accounts of those who collect the revenues and taxes raised by parliament, and take the accounts of the sheriffs, escheators, collectors, tenants, and customs, and set them down in a book and perfect them.

AUDITORS of the press and impress, are officers of the exchequer, who take and make up the account of Ireland, Berwick, the Mint, and of any money impressed to any man for the king's service.

AUDITORY, something relating to the sense of hearing. See the article **HEARING**.

AUDITORY, or **AUDIENCE**, an assembly of people who attend to hear a person speak in public.

AUDITORY Nerves, in anatomy, a pair of nerves arising from the medulla oblongata, with two trunks, the one of which is called the portio dura, or hard portion, the other portio mollis, or soft portion. See **NERVE**.

AVE-MARIA, the angel Gabriel's salutation of the Virgin Mary, when he brought her the tidings of the incarnation. It is become a prayer, or form of devotion, in the Romish church. Their chaplets and rosaries are divided into so many ave-maries, and so many paternosters, to which the papists ascribe a wonderful efficacy.

AVENA, the Oat, in botany; see **OAT**.

AVENOR, an officer belonging to the king's stables, who provides oats for the horses. He acts by warrant from the master of the horse.

AVENUE, in gardening, a walk planted on each side with trees, leading to an house or wood, &c. To form an avenue the English elm will do in all grounds, except such as are very wet and

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shallow; and this is preferred to all other trees, because it will bear cutting, heading or lopping in any manner, better than most others. The rough or smooth Dutch elm is approved by some, because of its quick growth: this is a tree that will bear removing very well; it is also green almost as soon as any plant whatever in spring, and continues so as long as any; and it makes an incomparable hedge, and is preferable to all other trees for lofty espaliers. The lime is valuable for its regular growth, and fine shade. The horse chestnut is proper for all places that are not much exposed to rough winds. The common chestnut will do very well in a good soil, and rises to a considerable height, when planted somewhat close, though, when it stands single, it is rather inclined to spread than grow tall. Lastly, the abele is fit for any soil, and is the quickest grower of any forest tree. It seldom fails in transplanting, and succeeds very well in wet soils, in which the others are apt to fail. The oak is but little used for avenues, because of its slow growth.

In avenues of a considerable length, and breath, the modern way is to plant clumps, consisting each of seven or nine trees.

AVENUE, in fortification, an opening or inlet into a fort, bastion, or the like. See **BASTION**.

AVERAGE, in commerce, the accidents and misfortunes which happen to ships and their cargoes, from the time of their loading and sailing, to their return and unloading; and it is divided into three kinds. 1. The simple or particular average, which consists in the extraordinary expences incurred for the ship alone, or for the merchandizes alone. Such is the loss of anchors, masts, and rigging, occasioned by the common accidents at sea; the damages which happen to merchandize by storm, prize, shipwreck, wet or rotting; all which must be borne and paid by the thing which suffered the damage. 2. The large and common average, being those expences incurred, and damages sustained for the common good and security both of the merchandizes and vessels, consequently to be borne by the ship and cargo, and to be regulated upon the whole. Of this number are the goods or money given for the ransom of the ship and cargo, things thrown over-board for the safety of the ship, the expences of unlading for entering into a river or harbour, and the provisions and hire of the sailors, when the ship is put under an embargo. 3. The

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small averages, which are the expences for towing and piloting the ship out, or into harbours, creeks, or rivers, one third of which must be charged to the ship, and two thirds to the cargo.

AVERAGE is more particularly used for a certain contribution, that merchants make proportionably towards their losses. It also signifies a small duty which those merchants, who send goods in another man's ship, pay to the master for his care of them over and above the freight. Hence it is expressed in the bills of lading, paying so much freight for the said Goods, with primage and average, accustomed.

AVERDUPOIS, or **AVERDUPOISE Weight**, a weight much used in England, whole pound consists of sixteen ounces. See **WEIGHT**.

AVERIA, a general name for cattle; but in law, is confined to oxen, and horses of the plough.

AVER-LAND, that plowed for the use of their lord.

AVERMENT, an offer of the defendant to make good an exemption pleaded in abatement, or bar of the plaintiff's action.

General **AVERMENT**, the conclusion of every plea to the writ, or in bar of replications, or other pleadings, containing affirmative matter.

Particular **AVERMENT** is when the life of a tenant for life, or a tenant in tail, is averted.

AVERRHOA, in botany, a genus of plants.

AVERRUNCI, in mythology, an order of deities, whose peculiar office it was to avert misfortunes. Apollo and Hercules were of this order among the Greeks, and Castor and Pollux among the Latins.

* **AUGEA**, in fabulous history, the daughter of Alceus, who was deflowered by Hercules, became pregnant, and brought forth Telephus; but when she was delivered, Alceus put both Augea and her son into a chest, and ordered them to be thrown into the river Caycus, when Venus steering the chest, brought it to the mouth of the river, where it was taken up by Teuthras, who falling in love with Augea, married her, and afterwards left his kingdom to Telephus.

* **AUGEAS**, in fabulous history, king of Elis, particularly famed for his stable, which contained three thousand oxen, and had not been cleaned for thirty years. Mercurius was desired to clear this stable in

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one day; and Augeas promised, if he performed it, to give him a tenth part of the cattle. This task Hercules performed by turning the course of the river Alpheus through the stable; when Augeas refusing to abide by his engagement, Hercules slew him with his arrows, and gave his kingdom to Phyleus his son, who abhorred his father's insincerity.

AUGMENT, *Augmentum*, in grammar, an accident of certain tenses of Greek verbs, being either the prefixing a syllable, or the encrease of the quantity of the initial vowels.

AUGMENTATION, in a general sense, the act of adding or joining something to another, to increase its magnitude.

Court of **AUGMENTATION**, a court erected in the 27th year of Henry VIII. to take care that the revenues of the crown were properly augmented by the estates arising from the suppression of religious houses. This court was dissolved in the first year of the reign of queen Mary.

AUGMENTATION, in heraldry, additional charges to a coat armour, frequently given as particular marks of honour, and generally borne either on the escutcheon or a conton. Thus all the baronets of England bear the arms of Ulster in Ireland.

AUGRE, or **AWGRE**, an instrument used by carpenters, millwrights, &c. for boring large round holes. It consists of a wooden handle and an iron blade, terminated with a steel bit.

AUGURS, among the old Greeks and Romans, were officers appointed to foretell future events by the chattering and feeding of birds, &c.

AUGURY, in its proper sense, the art of foretelling future events by the chattering, singing, and feeding of birds; but in its more general signification, comprising all the different kinds of divination, which was a very ancient superstition; for we find it forbidden by Moses. It was in great esteem among the Chaldeans, from whom the Greeks learned it; and from them the Tuscans had so high a value for this art, that, by a decree of the senate, it was ordered, that the advice of the augurs should be held sacred, and never deviated from. But what opinion the wiser Romans had of the art, appears from the saying of Cato, recorded by Cicero, that he wondered how two augurs could meet, without laughing in each other's face.

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The principal kind of augury, and from which it has its name, was the observation of birds; to which the ancients were so superstitiously addicted, that they never would undertake any thing of the least importance, without consulting these feathered oracles.

AUGUST, the eighth month of the year, according to our method of computing, beginning with January: but it was the sixth with the Romans, who for that reason called it *Sextilis*; which name was changed to August, from Augustus Cæsar.

AUGUSTALIA, a festival instituted by the Romans, in honour of Augustus Cæsar, on his return to Rome, after having settled peace in Sicily, Greece, Syria, Asia, and Parthia; on which occasion they likewise built an altar to him, inscribed *Fortunæ reduci*.

AUGUSTAN, in a general sense, something relating to the emperor Augustus. Thus, we say, Augustan age, Augustan æra, &c.

AUGUSTINE MONKS, a religious order in the church of Rome, who followed the pretended rule of St. Augustin, prescribed them by pope Alexander IV. in the year 1256. At present the order is divided into several branches; as the hermits of St. Paul; the Ieronimitans; the monks of St. Bridget; and the barefooted Augustins, instituted by a Portuguese, in 1574, and confirmed by pope Clement VIII. in 1600. As to the rule of St. Augustin, which they pretend to follow, is briefly this; The monks are to have all things in common: the rich, who enter into the order, are to sell their possessions, and give them to the poor: nothing is to be received, without leave of the superior; they are to employ the first part of the morning in labouring with their hands, and the rest in reading: they have Saturday allowed them to provide themselves with necessaries, and are permitted to drink wine on Sundays. When they go abroad, they must always go two in a company: they are never to eat but in their monastery; they are forbidden to harbour the least thought of women: they are to receive no letters or presents in secret. These with several other precepts relating to charity, modesty, chastity, and other Christian virtues, constitute what they call the rule of St. Augustin, which is read in presence of the monks once every week. The Augustins are clothed in black. At

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Paris they are known under the name of the religious of St. Genevieve, that abbey being the chief of the order. There are nuns likewise of this order.

AVIARY, a place for feeding and propagating birds. It should be so large, as to give the birds some freedom of flight; and turfed, to avoid the appearance of foulness on the floor.

AVIS, the name of an order of knighthood in Portugal, instituted by Sancho the first king, in imitation of the order of Alcantara, whose green crosses they wear.

AULIC, an epithet given to certain officers of the empire, who compose a court, which decides, without appeal, in all processes entered in it. Thus we say, aulic council, aulic chamber, aulic counsellor. The aulic council is composed of a president, who is a catholic; of a vice-chancellor, presented by the archbishop of Mentz; and of eighteen counsellors, nine of whom are protestants, and nine catholics. They are divided into a bench of lawyers, and always follow the emperor's court, for which reason they are called *justitium imperatoris*, the emperor's justice, and aulic council.

AUME, a Dutch measure for Rhenish wine, containing forty English gallons.

AUNCCEL-WEIGHT, an ancient kind of ballance, now out of use. In many parts of England, auncel-weight signifies meat sold by the hand, without scales.

AUNE, a long-measure used in France to measure cloth, stuffs, ribbons, &c.

At Rouen it is equal to one English ell, at Calais to 1. 52, at Lyons to 1. 016, and at Paris to 0. 95.

AVOIDANCE, in canon law, is when a benefice becomes void of an incumbent, which happens either in fact, as by the death of the parson, or in law, as by cession, deprivation, resignation, &c. In the first of these cases, the patron must take notice of the avoidance, at his peril; but in avoidance by law, the ordinary is obliged to give notice to the patron, in order to prevent a lapse.

AVOWRY, in law, is when a person distrained sues out a replevin; for then the distrainer must avow, and justify his plea, which is called his avowry. See **REPLEVIN**.

AURA, in chemistry, a certain fine pure spirit, found in every animal or vegetable body; but so subtle, as only to be

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be susceptible by its smell and taste, or other effects, not found in any other but that body.

AURANTIUM, in botany, the orange. See **ORANGE**.

AURELIA, in natural history, the same with chrysalis, and is sometimes nymph. See **CHRYSLIS** and **NYMPH**.

AUREOLA, in its original signification, a jewel which is proposed as a reward of victory in some public dispute. Hence the Roman schoolmen applied it to denote the reward bestowed on martyrs, virgins, and doctors, on account of their works of supererogation: and painters use it to signify the crown of glory, with which they adorn the heads of saints, confessors, &c.

AURICLE, in anatomy, that part of the ear, which is prominent from the head, called by some *auris externa*. See **EAR**.

AURICLES of the Heart. These are a kind of appendages of the heart at its base, and are distinguished by the names of the right and left. The right auricle is much larger than the left, and this is placed in the hinder, that in the anterior part.

AURICULAR, whatever belongs or relates to the ear. Thus we say, auricular witness, auricular confession, &c. as being done secretly, and as it were in the ear.

AURIGA, the Waggoner, in astronomy, a constellation in the northern hemisphere, consisting of twenty-three stars, according to Tycho; forty according to Hevelius; and sixty-eight in the *Britannic Catalogue*.

AURISCALPIUM, an instrument to clean the ears, and serving also for any other operation in disorders of that part.

AURORA, the morning twilight, or that faint light which appears in the morning, when the sun is within eighteen degrees of the horizon.

AURORA, in heathen mythology, the Goddess of the Morning, the youngest daughter of Hyperion and Theia, or, as some say, the daughter of Titan and the Earth. Under this name the ancients deified the light that fore-runs the rising of the sun; which, by the poets, has been represented in the most beautiful manner, particularly by Homer and Virgil, who represent Aurora as rising out of the ocean, in a saffron-coloured robe, and seated in a flame-coloured chariot, drawn by two or four horses, with her

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rosy fingers opening the gates of light, and scattering the pearly dew. This goddess is said to have been enamoured with a beautiful youth named Cephalus, who is supposed to be the same with the Sun, and by whom she had Phæton; her greatest favourite however was Tithonus, to whom she bore Æmation and Memnon; she had also an amour with Orion, though Astræa was her husband, who was one of the Titans, and by whom she had the stars, and the four winds, Zephyrus, Argæus, Boreas, and Notus.

AURORA Borealis, the northern dawn or light; a remarkable meteor of a luminous appearance, frequently visible during the night in the northern parts of the heavens.

This meteor exhibits a great variety of phenomena. The most obvious solution of the aurora borealis, or at least what would appear so to those who have only attended to the circumstances of some particular meteors of this kind, is, that it is a thin nitro-sulphureous vapour, raised in our atmosphere, considerably higher than the clouds; that this vapour, by fermentation takes fire, and the explosions of one portion of it kindling the next, the flames succeed one another till the whole quantity of vapour within their reach is set on fire. Some have thought that vapours rarefied exceedingly by subterraneous fire, and tinged with sulphurous steams, might thence be disposed to shine in the night, and rising up to the top of the atmosphere, or even beyond its limits, might produce these undulations in the air, which constitute this phenomenon. But these hypotheses have been rejected, as insufficient.

AURUM Fulminans, a chemical composition prepared by dissolving gold in aqua regia, and precipitating the metal from the menstruum, by adding a volatile alkali: after which the precipitated powder isedulcorated by frequent effusions of warm water, and then dried in the shade.

The aurum fulminans, prepared in this manner, weighs about one fourth part more than the gold employed, three parts of gold yielding four of the fulminating powder; according to the Lemery, Kunckel, and other practical writers. Part of the increase proceeds from the volatile alkali; for, on adding to the aurum fulminans a little vitriolic acid, the volatile salt rises in sublimation, saturated with the acid: the remaining powder is found to be divested of its fulminat-

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ing power. From the coalition of the volatile alkali with the nitrous acid in the menstruum results an ammoniacal nitre, a salt which of itself detonates on being heated; but by what power or mechanism its detonating quality is so remarkably increased in the aurum fulminans, is unknown.

The explosion of aurum fulminans is more vehement than of any other known kind of matter: it goes off in a less degree of heat than any of the other explosive compositions; and even grinding it somewhat smartly in a mortar, is sufficient for making it explode. Some instances are mentioned in the Bressau collections, and the Ephemerides Naturæ Curiosorum, of a very small quantity bursting in pieces the marble mortar in which it was rubbed; and an accident of the same kind happened some years ago to a skilful chemist here. The operator therefore cannot be too much upon his guard in the management of so dangerous a preparation.

It has been reckoned, that a few grains of aurum fulminans act with as much force as several ounces of gun-powder: but the actions of the two are of so different kinds, that it is difficult to determine in what manner their strength can be compared. The report of aurum fulminans is of extreme acuteness, offending the ear far more than that of a much larger quantity of gun-powder; but does not extend to so great a distance, seeming to differ from it as the sound of a short or tense musical string, from that of a long one, or of one which is less stretched. In some experiments made before the Royal Society, and mentioned in the first volume of Dr. Birch's History, aurum fulminans closed up in a strong hollow iron ball, and heated in the fire, did not appear to explode at all; while gun-powder, treated in the same manner, burst the ball. On the other hand, a little aurum fulminans, exploded on a metalline plate in the open air, makes an impression or perforation in the plate; an effect which gun-powder could scarcely produce in any quantity. *Lewin's Commercium Philosophico Technicum*

AURUM Musficum, or *Musficum*, a chemical preparation used by japaners in gilding their vessels.

Take of tin one pound, of flowers of sulphur seven ounces, of sal ammoniacum and purified quicksilver, each half a pound. Melt the tin, and add the quicksilver to it in that state; and when the mixture is become cold, powder it, and grind it with the sal ammoniacum and sulphur, till the

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whole be thoroughly commixt. Calcine them in a matrafs; and the other ingredients subliming, the tin will be converted into the aurum musficum; and will be found in the bottom of the glass like a mass of bright flaky gold powder: but if any black or discoloured parts appear in it, they must be carefully picked or cut out.

The sal ammoniacum employed, ought to be perfectly white and clean; and care should be taken, that the quicksilver be not such as is unadulterate with lead, which may be known by putting a small quantity in a crucible, into the fire, and observing when it is taken out, whether it be wholly sublimed away, or have left any lead behind it. The calcination may be best performed in a coated glass body, hung in the naked fire: and the body should be of a long figure, that the other ingredients may rise so as to leave the coloured tin clear of them. The quicksilver, though it be formed into cinnabar along with the sulphur, need not be washed; but may be revived by distilling it with the addition of quick-lime.

AURUM Potabile, or tincture of gold, a medicine formerly of great request, but at present rarely if ever used.

AUSTERE, rough, astringent. An austere taste is such a one as constricts the mouth and tongue with some austerity; as the taste of unripe fruit. Things of an austere taste are supposed by some, from their glutinous quality, to generate the stone.

AUSTERITY, among moral writers, severity and rigour. Thus we say, austerity of manners.

* **AUSTRIA**, the most easterly part of Germany, and has Hungary on the east, Moravia and Bohemia on the north; Bavaria and the archbishopric of Saltibourg on the west, and Siria on the south. It has the Danube throughout its whole length: it has likewise the Traun, the Enns, the Leyta, and other rivers, that facilitate commerce, and render the land fruitful; which bring forth plenty of corn, saffron, fruits, and wine. Austria is divided into two parts, the Higher and Lower. Higher Austria is the western part, containing four small quarters. There are two on the south of the Danube. That of Haufe, which extends along the side of the Danube; and in which are the cities of Lintz and Enns; and that of Traun, where we find the towns of Steor and Gemund. The other two Quarters are to the north of the Danube; that of Muhl contains the town of Freistadt, and borders upon Bavaria; that of

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of Schwartz is towards Lower Austria, and has the cities Mathausen and Greyn. Lower Austria is the eastern part, and is twice as large as the former; though it is divided only into four quarters; High Manhartberg, and the Lower, both on the north of the Danube; High Wiener-Wald and the Lower; these are both to the south of that river. The towns are Stain and Krembs; Retz, St. Polten, Tuln, and Trausmar; Haimburg, Neustadt, Newburg, Bruck, and Vienna, which is the capital.

* **AUSTRIA** (Circle of) is one of the nine great provinces which compose the German empire. It is the most eastern and southern of all the rest, is bounded on the north by the kingdom of Bohemia, the circle of Bavaria, and a small part of that of Swabia; on the west by the Swiss and Grisons; on the south by the State of Venice, and on the east by Hungary. It is divided into Interior Austria, which comprehends the Austrian archduchy, and the duchies of Carinthia, Styria, and Carniola, and their dependencies; Exterior Austria, which is the Tirol, taken in its whole extent: some add to this circle all that the House of Austria possesses in Swabia. All that that house possesses in the empire by right of succession is called the Hereditary Countries of the House of Austria. Hungary and Bohemia are not in the empire, and are kingdoms that pretend to be elective, though that claim is not allowed.

AUTER DROIT, in law, is when persons sue, or are sued in another's right, as executors, guardians, &c.

AUTER FOIS ACQUIT, in law, a plea made by a criminal that he has been acquitted of the same crime, with which he is charged. There are likewise pleas of *auter fois* convict and attain, that he has been before convicted of the same felony.

AUTHENTIC, something of acknowledged authority. In law, it implies something clothed in all its formalities, and attested by persons to whom credit has been regularly given. Thus we say, authentic papers, authentic instruments.

AUTHOR, one who created or produced any thing. Thus God is called the author of nature, the author of the universe.

The word author is sometimes used in the same sense as inventor. As, Otho de Guerick is reported to be the author of the air-pump.

AUTHOR, in matters of literature,

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one who has composed some book or writing.

Authors may be distinguished into sacred and profane, ancient and modern, known and anonymous, Greek, Latin, English, French, &c. and with regard to the subjects they treat, into divines, philosophers, orators, historians, poets, grammarians, physiologists, &c.

An original author is he who does not follow any other person, or imitate any model, either in the matter or method of his composition.

AUTHORITY, in a general sense, a right to command, and make one's self obeyed. In which sense, we say, the royal authority, the episcopal authority, the authority of a father, &c.

Authority, the testimony of an author, some apophthegm, or sentence of an eminent person, quoted in a discourse by way of proof.

AUTHORITY, in law, a power given by word, or writing, to a second person to act something, and may be by writ, warrant, commission, letter of attorney, &c.

AUTHORITY is represented, in painting, like a grave matron sitting in a chair of state, richly clothed in a garment embroidered with gold, holding in her right hand a sword, and in her left a sceptre. By her side is a double trophy of books and arms.

AUTO DA FE, act of faith. The ceremony of putting in execution the sentences pronounced on criminals by the tribunal of the inquisition. It is so called, because it is considered, in those countries as the most illustrious and public proof that can be given of a zeal for religion and the Catholic faith. See **INQUISITION**.

AUTOMATUM, or **AUTOMATON**, an instrument or machine; which, by means of springs, weights, &c. seems to move itself, as a watch, clock, &c. Such also were Archytus's flying dove, Regiomontanus's wooden eagle, &c.

* **AUTONOE**, in fabulous history, the daughter of Cadmus, king of Thebes, and Hermione, married Aristeus, and was the mother of Adleon.

AUTUMN, the third season of the year, when the harvest and fruits are gathered in. Autumn is represented, in painting, by a man at perfect age, clothed like the vernal, and likewise girded with a stary girdle; holding in one hand a pair of scales equally poised, with a globe in each; in the other, a bunch of divers fruits and grapes. His age denotes the perfection of this season, and the balance, that

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that sign of the zodiac, which the sun enters when our autumn begins.

AUTUMNAL, relating to autumn.

AUTUMNAL Point, that point of the equinox from which the sun begins to descend towards the south pole.

AUTUMNAL Signs, in astronomy, the signs Libra, Scorpio, and Sagittarius, through which the sun passes during the autumn.

AUTUMNAL Equinox, the time when the sun enters the autumnal point. See **EQUINOX**.

AUXILIARY, *Auxiliaris*, aiding or helping to another.

AUXILIARY Verbs, in grammar, such as help to form or conjugate others; that is, are prefixed to them, to form or denote the moods or tenses thereof. As *to have and to be*, in the English; *être & avoir*, in the French, &c.

In the English language, the auxiliary verb *am*, supplies the want of passive verbs.

AUXILIUM Curie, in law, a precept or order of court, to cite or convene one party at the suit of another.

AWARD, in law, the judgment of an arbitrator, or of one who is chosen by the parties themselves for terminating their difference. See **ARBITRATOR**.

A-WEIGH, in navigation, the anchor is called a-weigh, or a-trip, when the cable, being drawn perpendicular to it, and continued to be heaved into the ship, at length weighs or trips it out of the ground.

AWL; or **AUL**, among shoe-makers, an instrument to bore holes through the leather, to facilitate the stitching, or sewing the same. The blade of the awl is usually a little flat and bended, and the point ground to an acute angle.

AWME, or **AUME**, a Dutch liquid measure, equal to the tierce in England.

AWNING, amongst seamen, a canopy of canvass extended over the decks in hot weather, to protect them from being split by the heat of the sun; likewise for the convenience of the officers, &c.

AX, among carpenters, an instrument wherewith to hew wood.

This implement is deeper and heavier than the joiners hatchet.

AXILLA, in anatomy, the arm-pit, or the cavity under the upper part of the arm.

AXILLARY, *Axillaris*, something belonging to, or lying near the axilla. Thus, axillary glands, arteries, and veins, such as are actuated under the arm-pits.

AXIOM, in philosophy, a plain, self-evident, and received notion. Such as, that nothing can act where it is not; that

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a thing cannot be, and not be, at the same time; that the whole is greater than a part thereof; and that from nothing, nothing can arise. By axioms, called also maxims, are understood all common notions of the mind, whose evidence is so clear and forcible, that a man cannot deny them, without renouncing common sense and natural reason. The rule to know an axiom is this: Whatever proposition expresses the immediate clear comparison of two ideas without the help of a third, is an axiom. But if the truth does not appear from the immediate comparison of two ideas, it is no axiom.

AXIOM, an established principle in some art or science. Thus it is an established axiom in physics, that nature does nothing in vain: so it is in geometry, that if to equal things you add equals, the sums will be equal. It is an axiom in optics, that the angle of incidence is equal to the angle of reflection, &c. In which sense too, the general laws of motion are called axioms: whence it may be observed, that these particular axioms are but deductions from certain hypotheses.

AXIS, a line, or long piece of iron or wood, passing through the center of a sphere and about which the sphere revolves.

AXIS of the World, an imaginary right-line conceived to pass through the center of the earth, from one pole to another, about which the sphere of the world, according to the Ptolemaic system, revolves in its diurnal motion.

AXIS, in geometry, that straight line in a plain figure at rest, about which the figure revolves, in order to form or generate a solid.

AXIS of a Cone, the straight line or side, about which the right-angled triangle forming the cone, moves; and so only a right cone can properly have an axis, because an oblique cone cannot be generated by the motion of a plain figure about a straight line at rest: but because it is plain from the definition, that the axis of a right cone is a straight line, drawn from the center of its base to the vertex; therefore, the writers of conic sections call likewise that line drawn from the center of the base of an oblique cone to the vertex, the axis of the cone.

AXIS of a Cylinder, that quiescent line about which the parallelogram forming the cylinder revolves. But in both right and oblique cylinders, that right line joining the center of the opposite bases, is called the axis of the cylinder.

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AXIS of a Glass, in optics, a right line, connecting the middle points of the two opposite surfaces of the glass.

AXIS, in optics, that ray which is perpendicularly on the surface of the eye, and consequently passes through its center.

AXIS of Oscillation, a right line parallel to the horizon, passing through the center about which a pendulum vibrates.

AXIS of a Planet, a line drawn through the center of the planet, and about which it revolves.

AXIS of a Magnet, a right line drawn through the magnet longitudinally, and terminated by its two poles.

AXIS, in anatomy, the tooth-like eminence in the second vertebra of the neck.

Spiral AXIS, in architecture, the axis of a twisted column drawn in a spiral form, in order to trace the circumvolutions on the surface.

AXIS of the Ionic Capital, a line passing perpendicularly through the middle of the eye of the volute.

AXIS in peritrochio, one of the five mechanical powers used to raise weights to a considerable height. It consists of a peritrochium, or wheel, concentric with the base of a cylinder, and moveable together with it about its axis.

Because, in this machine, the wheel and its axis move together, it is evident that, in one turn of the wheel, when the power *P* (see plate VII. fig. 6.) descends a length equal to the circumference of the wheel, the weight *W* will be raised an height equal to the circumference *A*, by the winding of the rope, which carries the weight upon the said axis. And because, when there is an equilibrium between two weights, as *W* and *P*, there must be a reciprocal proportion between the masses and velocities; *W* will be to *P*, as the circumference of the wheel is to that of the axis (supposing the thickness of the rope to be inconsiderable), or as the semi-diameters of the wheel to the semi-diameter of the axis; for the semi-diameters of different circles are in the same proportion to one another as their circumferences. The axis in peritrochio may also be considered as a lever of the first kind: for the fulcrum will be in the middle of the axis *A*. If, therefore, lines be drawn from the middle of the axis to the power and weight, parallel to the horizon, the radius or semi-diameter of the wheel will be the distance of the power, and the radius of the axis the distance of the weight; and when these radii are reciprocally

A X I

as the weight and power, the machine will be in equilibrio. The wheel and axis therefore is nothing more than a perpetual lever. It has been already observed that the thickness of the rope carrying the weight, is supposed to be inconsiderable; but as this is never the case in practice, when the weight is considerable, it will be necessary to make a proper allowance for it; and this is done by adding the semi-diameter of the rope to the semi-diameter of the axis; for the weight really hangs half the thickness of the rope beyond the axis. It is also necessary that the line of direction in which the power acts be a tangent to the wheel; for otherwise it will not produce the same effect, as the lever to which it is applied will be shortened. If a plumb-line be applied to any part of the circumference of the wheel above the horizontal radius, it will form a chord line, connecting two points in the circumference of the wheel; and if this chord be bisected by a radius drawn from the center, the part of that radius intercepted between the center and the chord will be the length of the lever on which the power acts in that position.

The machine represented by the figure, is a model (made by a scale of an inch to a foot) of such an axle and wheel, as is often made use of to draw water out of a well, by means of a power drawing by a rope applied to the circumference of one of the wheels of the machine, or by pressing down successively the handles *E*, *F*, *G*, *H*, *I*, *K*, whilst another rope or chain is wound up upon the axis *A* or *B*, a bucket hanging at it instead of the weight *W*. Here, in the experiment, one pound hanging at the circumference of the biggest wheel *C D*, will keep in equilibrio 12 pounds hanging at the smallest axis *A*, or 6 pounds at the axis *B*, and only 3 pounds upon the circumference *T V*. In the same manner, when the weight hanging at the axis continues in the same place, and to be of the same quantity, viz. 12 pounds; then the power, which, at the circumference of the wheel *C D*, is equal to 1 pound, must be equal to $1\frac{1}{2}$ pound, if to be applied at *S R*; but if it be applied at one of the handles at the distance of a $\frac{1}{3}$ of an inch from the circumference of the wheel *C D* (which is the same as if a new wheel was added of $\frac{1}{2}$ an inch more in diameter); then a power, equal to no more than $\frac{12}{14}$ of a pound, will keep the weight in equilibrio, and raise it, if its intensity be increased ever so little.

AXIS

A Z I

AXIS, in natural history, an animal of the deer kind, common in several parts of Africa.

AXUNGIA, old lard, or the driest and hardest of any fat in the bodies of animals.

AXUNGIA Vitri, sandiver, or salt of glass, a kind of salt which separates from the glass while it is in fusion.

AYRY, or **AERY of Hawks**, a nest or company of hawks, so called from the old French word *aire*, which signified the same.

AZALEA, in botany, a genus of plants.

AZIMUTH, in astronomy, the angle contained between the meridian and another great circle of the sphere passing through the zenith and nadir; and when this vertical circle passes through the center of the sun or of a star, the measure of the angle so contained is said to be the azimuth of the sun or star.

The azimuth is the complement of the eastern and western amplitude to a quadrant.

Magnetical AZIMUTH, an arch of the horizon, intercepted between the azimuth or vertical circle, passing through the center of any heavenly body and the magnetical meridian. The magnetical azimuth is found by observing the object with an azimuth compass.

AZIMUTH-COMPASS, an instrument for finding either the magnetical azimuth or amplitude of an heavenly object. The learned Dr. Knight invented some time since a very accurate and useful sea-compass, which is at present used in the navy. See **COMPASS**. This instrument, with the contrivance added by the ingenious Mr. Smeaton, answers the purposes of an azimuth and amplitude-compass.

AZIMUTH Circles, called also azimuths, or vertical circles, are great circles of the sphere intersecting each other in the zenith and nadir, and cutting the horizon

A Z Y

at right angles. These azimuths are represented by the rhumbs on common sea-charts, and on the globe they are represented by the quadrant of altitude, when screwed in the zenith. On these azimuths is reckoned the height of the stars and of the sun, when not in the meridian.

AZURE, in a general sense, the blue colour of the sky.

AZURE, among painters, the beautiful blue colour, with a greenish cast, prepared from the lapis lazuli, generally called ultramarine. With greater propriety, however, azure signifies that bright blue colour prepared from the lapis armenus, a different stone from the lapis lazuli, though frequently confounded together. This colour is, by our painters, commonly called Lambert's blue.

AZURE, in heraldry, the blue colour in the arms of any person below the rank of a baron. In the escutcheon of a nobleman, it is called sapphire; and in that of a sovereign prince, Jupiter. In engraving, this colour is expressed by lines, or strokes drawn horizontally.

AZURIUM, the name of a chemical preparation from two parts of mercury, one of sulphur, and a fourth of sal ammoniac, mixed in a mortar, put into a glass vessel, and set over the fire till a bluish smoke arises, &c.

AZYGOS, in anatomy, a vein rising within the thorax on the right side, having no fellow on the left; whence it is called azygos, or vena sine pari.

AZYMITES, azymites, in church-history, Christians who administer the eucharist with unleavened bread.

This appellation is given to the Latin by the Greek church, because the members of the former use fermented bread in the celebration of the eucharist. They also call the Armenians and Maronites by the same name, and for the same reason.

AZYMOUS, something unfermented, or made without leaven; as unleavened bread. Sea-bisket is of this kind.

B.

B A C

B, The second letter of the English, and most other alphabets.

B. A. signifies batchelor of arts, **B. L.** batchelor of laws, and **B. D.** batchelor of divinity.

BAAL, an Hebrew and Chaldaic word signifying lord, or mighty. It was the name of the idol of the Moabites and Phœnicians. The Grecians, who were accustomed to take the eastern divinities for their own, called this idol Jupiter, and sometimes Mars. The Phœnicians adored the sun under the names of Baal and Moloch. It is thought this idol was the first invented by superstition, and the original worship of idolatry.

* **BABEL**, *Tower of*, began building 2247 before Christ, and continued building forty years, when God confounded the builders language, and dispersed them into different nations. From thence arose the difference of languages, the dispersion of the people, and the forming of empires. From Japhet, Noah's eldest son, sprung the inhabitants of the north of Europe and Asia, as well as those of the west. From Shem came the people of the east, as also those of Israel, and from Ham, descended the Canaanites, Philistines, Egyptians, and the ancient possessors of Africa.

BABBLING, among sportsmen, is said of hounds which are too busy after they have found a good scent.

BAEON, in natural history, a large kind of ape, common in the East and West Indies. The face is naked, but the back part of the head is hairy.

BABYLONISH, or **BABYLONIAN**, belonging or peculiar to Babylon, as Babylonish epocha, &c. See *EPOCHÆ*.

BACCHANALIA, feasts celebrated in honour of Bacchus, by the ancient Greeks and Romans. Two of these feasts were particularly remarkable, and distinguished by the epithets *greater* and *lesser*. The latter were held in the open fields during the autumn; but the former in the city about the vernal equinox.

* **BACCHUS**, in heathen mythology, the god of wine, was the son of Jupiter and Semele. To prevent his being destroyed by fire, Jupiter took him, half formed, out of his mother's womb, and inclosing him in his thigh, kept him

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there till the full time of his birth. It is advanced by some, that the nymphs took care of his education; and by others that he was educated by the hours; and others, by the Naiades. After this, Mercury carried him to Maëris, the daughter of Acrisus, who anointed his lip with honey; but Juno incensed at his finding protection in Eubœa, a place sacred to her, banished him thence; when Maëris fled with him into the country of the Phœnicians, and nourished him in a cave. Others pretend that Cadmus, Semele's father, discovering her crime, put her and the child into a wooden ark, which was carried by the tide to Oreada, a town of Liconia, where Semele being found dead was buried with great pomp and the infant nursed by Ino, in a cave. During this persecution, Bacchus being tired, fell asleep, when a two-headed serpent, bit his leg, but awaking, he killed it by striking it with a vine twig. In his infancy, some Tyrrhenian pirates found him asleep on the shore, and intended to have carried him away, when on a sudden their masts were encompassed with vines, and their oars with ivy; and the mariners themselves, being seized with a sudden distraction, leapt into the sea, and were changed into dolphins. Bacchus, during the wars of the giants, distinguished himself by his valour in the form of a lion. Some say, that in this rebellion, the Titans cut the god to pieces; but that Pallas, taking his heart, while it was yet panting, carried it to Jupiter, who collected the limbs, and reanimated the body, after his soul had slept three nights with Proserpine. Bacchus is said to have gained great victories in the Indies, and to have taught men the art of planting the vine.

The ancients represented Bacchus as a youth, naked, or only covered with a tyger's skin, with a ruddy face, wanton look, and effeminate air; he was crowned with ivy and vine-leaves, and bore in his hand a javelin, incircled with the same leaves. He was painted sitting in a triumphal chariot, drawn sometimes by lions, or tygers, accompanied by satyrs and wood-nymphs, and the procession closed with old Silenus riding on an ass. The victims sacrificed to Bacchus were the

goat

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geat and swine, on account of those animals being destructive to the vines, and the pye, from its chattering. The trees and plants used in his garlands were the vine, the fir, the ivy, and the oak, the herb rape-weed, and the flower narcissus.

BACCIFEROUS Plants, in botany, such as bear berries, or fruit covered with a thin membrane, wherein is contained a pulp, which grows soft and moist, when ripe, and incloses the seed within its substance.

BACHELOR. See **BACHELOR**.

BACK, in anatomy; see **DORSUM**.

BACK-ASTERN, in rowing, is to row a vessel with her stern, or hinder-part, fore-most, contrary to her usual motion.

BACKING the Sails, in navigation, is to arrange them in a situation that will force the ship to retreat, or move backwards: this is only done in narrow channels, when a ship is carried along sideways by the tide or current, and wants to avoid any thing that may interrupt her progress, as shoals, vessels at anchor, &c. or in the line of battle, when a ship wants to be immediately opposite to another with which she is engaged.

BBCK-BONE. See **VERTEBRA**.

BACK-PAINTING, the art of painting mezzotinto prints, pasted on glass, with oil-colours.

It consists chiefly in laying the print upon a piece of crown glass, of such a size as fits the print.

It is performed thus; take your print, and lay it in clean water for two days and two nights, if the print be on very strong, close, and hard gummed paper; but if upon an open, soft, spongy paper, two hours will sometimes suffice, or more, according as the paper is. The paper or picture having been sufficiently soaked, take it out and lay it upon two sheets of paper, and cover it with two more; and let it lie there a little to suck out the moisture. In the mean time, take the glass the picture is to be put upon, and set it near the fire to warm; take Strasbourg turpentine, warm it over the fire till it is grown fluid; then with a hog's-hair brush spread the turpentine very smoothly and evenly on the glass.

Afterwards take the mezzotinto print from between the papers, and lay it upon the glass; beginning first at one end, rubbing it down gently as you go on, till it lie close, and there be no wind bladders between. Then, with your fin-

B A C

gers, rub or roll off the paper from the back-side of the print, till it looks black, that is, till you can see nothing but the print, like a thin film, left upon the glass, and set it by to dry. When it is dry, varnish it over with some white transparent varnish, that the print may be seen through it, and then it is fit for painting. The utmost care will be necessary in rubbing or rolling the paper off the print, so as not to tear it, especially in the light parts. You may instead of soaking your prints two days and two nights, roll them up and boil them for about two hours, more or less, according to the quality of the paper, in water, and that will render it as fit for rubbing, rolling, or peeling, as the other way. This being done, and your oil colours prepared, ground very fine, and tempered up very stiff, lay on the back side of the transparent prints, such colours as each particular part requires; letting the master-lines of the print still guide your pencil, and so each particular colour will lie fair to the eye on the other side of the glass, and look almost as well as a painted piece, if it be done neatly. The shadows of the print are generally sufficient for the shadow of every colour; but if you have a mind to give a shadow by your pencil, then let the shadows be laid on first, and the other colours afterward. In laying on colours in this kind of back painting, you need not be curious as to the laying them on smooth. This is not at all requisite here, where the chief aim is only to have the colours well on the fore-side of the print; and therefore the only care to be used in this work, is to lay the colours on thick enough, that its body may strike the colour of it plainly through the glass.

BACK-STAYS, a naval term, ropes fastened to the top-mast heads, and reaching down behind the mast to the outside of the ship, where they are drawn extremely tight: two of them are generally formed of one rope; the middle of which is fixed on the mast-head: their use is to sustain the top-masts, and keep them upright when they are pressed with a weight of sail, against which they act with a counter force.

* **BACON** (Sir **NICHOLAS**) Lord keeper of the great seal was born at Chilthorpe, in Kent, in 1510, and educated at Cambridge, after which he travelled into France, and on his return settled at Gray's Inn, where he soon distinguished himself by his proficiency in the study of the law. He was knighted on queen ELIZA-

B A C

Elizabeth's coming to the throne; and on the 22d of December, 1558, the great seal of England was delivered to him, with the title of lord keeper, and he was also made one of the queen's privy council. As a statesman, he was remarkable for a clear head and deep counsels; but his great parts and high preferment were far from raising him in his own opinion; for when queen Elizabeth told him his house at Redgrave was too little for him; "Not so, madam, returned he, but your majesty has made me too great for my house." Towards the latter end of his life he grew very corpulent, which made queen Elizabeth say merrily, that "Sir Nicholas's soul lodged well." To himself, however, this bulk was very cumbersome. At length, after having held the great seal more than twenty years, this able statesman and faithful counsellor was suddenly removed from this life, by the following accident: he was under the hands of the barber, and thinking the weather warm, had ordered a window before him to be thrown open, but fell asleep as the current of fresh air was blowing in upon him, and awaked some time after disordered all over: "Why, said he to the servant, did you suffer me to sleep thus exposed?" the fellow replied, that he durst not presume to disturb him: "Then said the lord keeper, by your civility I lose my life;" and so removed into his bed-chamber, where he died a few days after, on the 20th of February, 1578-9, equally lamented by the queen and her subjects. Mr. Granger observes, that he was the first lord keeper that ranked as lord chancellor; and that he had much of that penetrating genius, solidity, and judgment, persuasive eloquence, and comprehensive knowledge of law and equity, which afterwards shone forth with so great a lustre in his son, who was as much inferior to his father in point of prudence and integrity, as his father was to him in literary accomplishments.

* BACON (FRANCIS) viscount St. Alban's, and lord high chancellor of England in the reign of king James I. was the son of Sir Nicholas Bacon, lord keeper of the great seal, and was born on the 22d of January, 1561. In his tender years his abilities were so conspicuous, that queen Elizabeth was so charmed with his solidity and the gravity of his behaviour, that she would often call him her young lord keeper. He was educated at Trinity-college, Cambridge, and made such progress in his studies, that before

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he was sixteen he had not only run through the whole circle of the liberal arts as they were then taught, but began to perceive those imperfections in the reigning philosophy, which he afterwards so effectually exposed. On his leaving the university, his father sent him to France, where, before he was nineteen years of age, he wrote a general view of the state of Europe; but Sir Nicholas dying, he was obliged to return to England, when he applied himself to the study of the law, at Gray's-inn, and, in 1588, was made one of the queen's counsel; but notwithstanding her majesty's early prepossession in his favour, he met with many obstacles to his preferment during her reign; for his enemies represented him as a man, who, by applying too much to other branches of knowledge, could not but neglect that of his profession; but his Maxims of Law and History of the Alienation Office, both of which works were written in this reign, though they were not published till after his decease, sufficiently shew the injustice of these representations; he also distinguished himself, during the latter part of the queen's reign, in the house of commons, where he spoke often, and yet with such wisdom and eloquence, that his sentiments were generally approved by that august assembly. But notwithstanding the little regard paid by the court to his merit, he served the queen, as long as she lived, and upon the accession of king James, he was soon raised to considerable honours; for on the 23d of July, 1603, he was introduced to the king, and received the honour of knighthood. In 1611, he was appointed judge of the marshal's court; in 1613, he was made attorney-general; in 1617, lord keeper; and, in 1618, lord high chancellor of England; the same year he was created baron of Verulam: and in January, 1621, advanced to the dignity of Viscount St. Alban's; but that very year complaints were made to the house of commons of his lordship's having received several bribes, which complaints were sent up to the house of lords, and new ones being daily made of a like nature, things soon grew too high to be got over. The king was extremely affected at this first news of this affair; and the lord chancellor had all the protection afforded him that was either in the power of the marquis of Buckingham, or even in the king, who actually in hopes of softening things a little, procured a recess of parliament; but this method

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method having a contrary effect, his lordship, instead of entering into a formal defence, threw himself upon the mercy of the house, by an humble submission, which he drew up in writing, and presented upon the prince of Wales, afterwards king Charles I. to present it to the house; and this confession or submission he afterwards explained and confirmed, on which he was sentenced to pay forty thousand pounds, to be imprisoned during the king's pleasure, to be rendered for ever incapable of any office or employment in the state, and never to sit in parliament, or come within the verge of the court. However, after a short confinement in the Tower, he was discharged, and afterwards received a full pardon from the king. But, his virtues, his knowledge, and, above all, his zeal for mankind, will be felt while there are men, and while they have gratitude; the name of sir Francis Bacon, or lord Verulam, can never be mentioned but with admiration!

The honourable Mr. Walpole, calls him the prophet of arts, which Newton was afterwards to reveal; and adds, that his genius and his works will be universally admired as long as science exists.—"As long as ingratitude and adulation are despicable, so long shall we lament the depravity of this great man's heart.—Alas! that he who could command immortal fame, should have stooped to the little ambition of power!" Pope has these two remarkable lines on him.

"If parts allure thee think how Bacon shin'd,

The wisest, brightest, meanest of mankind."

His works, which are the glory of our nation, are collected together, and printed in four volumes folio; the lord Verulam died at the earl of Arundel's house, at High-gate, the 9th of April, 1626, and was privately buried in the chapel of St. Mary's church, within the precincts of Old Verulam, in the chancel of which church sir Thomas Meautys, once his secretary, and afterwards clerk of the council, caused a neat monument of white marble to be erected.

BACULÆ, in fortification, a kind of portcullis, or gate, made like a pitfall, with a counterpoise, and supported by two strong stakes. It is usually erected before the corps de garde, not far from the gate of a place.

BADGE, in naval architecture, an ornament placed on the quarter of small

B A G

ships, very near the stern, containing either a window for the convenience of the cabin, or the representation of it: it is usually decorated with marine figures, martial instruments, &c.

BADGER, *Taxus*, or *Mole*, in natural history, an animal very common in many parts of England. It has a thick shortish body, with a very short neck, and coarse hair, nearly resembling that of a hog.

It lives upon beetles and other insects; for in its stomach, which is very large, great numbers of these have been found, mixed with the roots of grass. Some say he feeds upon apples and grapes; and that he is fond of rabbits, geese, fowls, and other birds; but, of this, little can be said with any certainty. The burrows that he makes in the earth are not only for his own safety, but for the sake of getting his food; for he finds a great many insects under the earth, as well as the roots of plants. The flesh of a badger is said to be good eating, and to taste like that of a boar. The fat is emollient, warm, and penetrating; and it is thought to be good to ease pains in fits of the gravel.

BADGER, in law books, one licensed to purchase corn at one place, and sell it at another, without incurring the penalty of an engrosser.

BÆTYLIA, anointed stones, worshipped by the Phœnicians. They were commonly of a black colour, and consecrated to some god, as Saturn, Jupiter, the Sun, &c.

BAFFETAS, or **BAFTAS**, a cloth made in the East-Indies, from coarse white cotton thread. Those of Surat are reckoned the best. Broad brown and narrow-brown baffetas are made of thread before it has been bleached. The former are fourteen ells long, by half an ell broad; the latter of the same length, and three quarters in breadth.

BAG, in commerce, a certain quantity of some particular commodity; as a bag of almonds, for instance, is about three hundred weight; of aniseeds, from three to four hundred, &c. Bags are used, in most countries, to put several sorts of coin in, either of gold, silver, brass, or copper. Bankers, and others, who deal much in current cash, label their bags of money, by tying a ticket or note at the mouth of the bag, signifying the coin therein contained, the sum total, its weight, and of whom it was received. Tare is allowed for the bag.

BAGGAGE in the military art, the necessities, utensils, apparel, &c. of the officers

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officers and soldiers. The baggage includes also women, children, fustians, &c. The baggage-waggons before a march are appointed a rendezvous, where they are marshalled by the waggon-master-general, according to the rank the several regiments bear in the army. On a march, they are sometimes ordered to follow the respective columns of the army, sometimes to follow the march of the artillery, and sometimes to make a column of themselves. The general's baggage is commonly first. If the army march from the right, the baggage of that wing has the van; if from the left, the baggage of the left has the van. Each waggon has a distinguishing flag, to shew to what regiment it belongs.

BAGNIO, an Italian word, signifying a bath: we use it for a house with conveniences for bathing, cupping, sweating, and otherwise cleansing the body; and too frequently for worse purposes.

BAGPIPE, a musical wind instrument chiefly used in the North: it consists of two principal parts; the first a leathern-bag, which blows up like a foot-ball, by means of a port-vent, or little tube, fitted to it, and stopped by a valve: the other part consists of three pipes or flutes; the first called the great pipe, or drone; and the second, the little one; which pass the wind out only at the bottom: the third has a reed, and is played on by compressing the bag under the arm, when full, and opening or stopping the holes, which are eight, with the fingers. The little pipe is ordinarily a foot long; that played on, thirteen inches; and the port-vent six.

BAHAR, or **BARR**, a weight used in Ternate, Mocha, in the Moluccas, Achem, and divers other parts of the East-Indies. The great Bahar is 481 pounds 4 ounces, and the little, 401 pounds, 7 ounces, Paris measure.

BAIL, in law, the setting at liberty a person arrested, or imprisoned, upon an action, either civil or criminal, upon sureties taken for his appearance at a day and place assigned; and is either common or special. Common bail is in actions of small prejudice, or slight proof, in which case almost any sureties are taken. Special bail is that given in cases of greater moment. It was some years ago enacted, that no person should be held to special bail in any action brought for less than ten pounds: but this is only observed as to writs issued out of the courts of Westminster-Hall; for the marshal's court continues to arrest and hold to special bail

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in actions exceeding forty shillings. By the common-law, all persons might be bailed till they were convicted of the offence laid to their charge: but it is enacted, by statute, that murderers, outlaws, house-burners, thieves, openly defamed, shall not be bailed. However, this statute does not extend to the court of the king's bench, which bails in all cases whatsoever, and may bail even for murder, of which we have had a very recent instance.

Clerk of the BAILS, an officer of the court of the king's bench: he files the bail-pieces taken in that court, and attends for that purpose.

BAILIFF, an officer appointed for the administration of justice within a certain district, called a bailiwick.

There are also bailiffs of forests, and bailiffs of manors, who direct husbandry, sell trees, gather rents, pay quit-rents, &c.

BAILIWICK, that liberty exempted from the sheriff of the county, over which liberty the lord thereof appoints his own bailiff, with the like power within his precinct, as an under-sheriff exercises under the sheriff of the county: or it signifies the precinct of a bailiff, or the place within which his jurisdiction is terminated.

BAIRAM, a yearly festival of the Turks, which they keep after the fast of Ramazan. The Mahometans have two bairams, the great and the little. The little bairam holds for three days, and is seventy days after the first, which follows immediately the Ramazan.

BAIT, among fishermen, a substance proper to be fastened to a hook, to lure and catch the different sorts of fish.

Baits are of two sorts. 1. The natural ones, as maggots, bobs, frogs, &c. 2. Artificial baits, whether such as imitate the living baits, or pastes of several compositions and figures. Sheep's blood and cheese are reckoned good baits in April; the bobs dried, wasps, and bees, are for May; brown flies for June; maggots and hornets for July; snails in August; grasshoppers in September; corn and bramble berries at the fall of the leaf: the red-earth worm is good for small fish all the year round; and small fish are good baits for pikes at all times. There are several baits for intoxicating of fowls, and yet without tainting or hurting their flesh: for the greater sort of land-fowls, the bait may be made thus: Take a peck, or a lesser quantity, of wheat rye, &c. with which mix two handfuls of raw

vomica;

B A L

vomica; boil them together till they are almost ready to burst; strew them upon the land where you design to take the fowl, and such as eat thereof will be intoxicated, and lie as if dead. Small birds may be taken with only this alteration; instead of wheat, or the like grain, take hempseed, &c.

BAKING, the art of preparing bread, or of reducing meal of any kind, into bread. See **BREAD**, &c.

* Baking of bread was invented 1400 years before Christ.

BALANCE, or **BALLANCE**, *Libra*, one of the six simple powers in mechanics, principally used in determining the difference of weights in heavy bodies, and consequently their masses or quantities of matter. The ballance is of two kinds, the ancient and the modern. The ancient, or Roman, called also the *statera Romana*, or steel-yard, consists of a lever or beam, moveable on a center, and suspended near one of its extremities: the bodies to be weighed are applied on one side of the center, and their weight is shewn by the division marked on the beam, where the weight, which is moveable along the lever, keeps the steel-yard in equilibrio. This balance is still frequently used in weighing heavy articles. The modern balance now generally used consists of a lever or beam suspended exactly in the middle, having scales hung to each extremity.

The lever is called the *jugum* or beam, and the two moieties thereof on each side the axis, the *brachia* or arms. The line on which the beam turns, or which divides its brachia, is called the axis; and when considered with regard to the length of the brachia, is esteemed a point only, and called the center of the balance: the handle whereby it is held, or by which the whole apparatus is suspended, is called *trutina*; and the slender part perpendicular to the beam, whereby either the equilibrium, or preponderancy of bodies is indicated, is called the tongue of the balance.

Assay **BALANCE**, a very nice balance used in doctrinastical operations, to determine exactly the weight of minute bodies. This balance should be made of the best steel, and of the hardest kind; because that metal is not so easily spoiled with rust, as iron; and it is more apt than any other to take a perfect polish, which at the same time prevents the rust. The structure of the assayer's scale is little different from that of common scales, otherwise than by its nicety and smallness. The longer the beam of it is, the more exact may the

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weight of a body be found; however, ten or twelve inches are a sufficient length. Let the thickness of it be so little, that two drams may hardly be hung at either of its extremities, without its bending; for the largest weight put upon it seldom exceeds one dram. The whole surface of this beam must be altogether without ornaments, which only increase the weight, and gather dust, &c. The beam is suspended in a fork, the two legs of which are steel-springs joined at top, but kept together below with a brass pliant clasp, parallel, and two lines and a half distant from each other. This clasp being taken off, and the legs of the fork being stretched out, the axis of the beam may be put into two holes made for that purpose at the ends of the legs, or be taken away from them. Let a very sharp needle be fixed in the head of the fork, standing perpendicularly downwards, if the fork is suspended, and so long, as that it may almost touch the top of the tongue of the beam, put into the fork, when in equilibrio. This needle is the mark of the equilibrium; and, that the artists may be able to observe this, the legs of the fork must be broader in that place, and have an opening two or three lines wide: then take two scales made of a thin plate of silver, one inch and a half in diameter, hanging on three small silk strings, almost as long as the beam, tied together at top, with a silver hook, in form of an S, and hang them to the extremities of the beam: a smaller silver dish, or blued steel, somewhat less than one inch in diameter, belongs to each of these scales. You first put into these dishes, with a pair of pincers, the bodies to be weighed, or with a spoon or a small shovel, when they are pounded, and then you put them into the scales; therefore the small dishes must be perfectly equal in weight. We use them, that bodies may be more conveniently put into and taken out of the scales, and that these, which are vastly thin, may not be bent or soiled, and thence rendered false by wiping. This balance is suspended on a moveable brass or copper support, which consists of a pedestal, and of a column set upon it about twenty inches high, at the top of which comes out at right angles an arm one inch long. At the extremity of this arm, put a small pulley three lines in diameter: another at the top of the column, and a third near the bottom of it: all which pulleys must turn very easily on their axes. At the distance of one inch and a half below the upper-arm, let ano-

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ther arm, one inch and a half long, come out of the column at right angles, having a hole through it two lines long, a quarter of a line broad, and placed perpendicularly below the pulley of the upper arm, to receive a small plate, one inch and a half long; and of such breadth and thickness, as that it may freely move up and down, and yet not have too much play within the hole. This plate must also have a small hook at each extremity.

Hydrostatic BALANCE, an instrument to determine accurately the specific gravity of both solid and fluid bodies.

BALANCING, among seamen, a singular method of contracting or reducing a sail in a tempest, in contradistinction to reefing, which is common to all the principal sails; whereas none are balanced but the mizen and main-sails set on booms.

BALANUS MARINUS a sea shell-fish, of an oblong figure, approaching to that of an acorn, open at the mouth or top, and composed of several portions, or valves, from six to twelve in number, not moveable or loose, as in the other bivalve or multivalve shell, but fixed in one another by an intermediate substance: the animal inhabiting this shell is called a triton. See **TRITON**.

BALAUSTINE, large rose-like flowers, the produce of the wild or double-flowered pomegranate-tree, a low prickly tree or shrub, a native of the southern parts of Europe; but cultivated in some of our gardens, on account of the beauty and continuance of its flowers. Balaustine flowers are mildly astringent and corroborant; of a moderately rough and somewhat bitterish taste, and of little or no smell or particular flavour.

* **BALCHEN** (Sir John) a brave English admiral, was born the 2d of Feb. 1669, and at a proper time entered on board the royal navy, where he served several years in inferior stations, but, in 1697, was appointed captain of the *Virgin* prize, and was always afterwards considered as one of the most active commanders in the royal navy. He commanded the *Shrewsbury* in that glorious action near Sicily, in which the Spanish fleet was almost totally destroyed by that of Great Britain commanded by sir George Byng. In 1728, he was made rear-admiral of the blue; and in 1731, commanded under sir Charles Wager, when Don Carlos was placed on the throne of Naples. In 1734, he was made rear-admiral of the white; in 1739, vice-admiral of the red; in 1743, admiral of the white; and in 1744, gover-

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nor of Greenwich hospital. Soon after sir Charles Hardy having been sent with a large convoy of store-ships to admiral Matthews in the Mediterranean, and sir Charles being blocked up in the Tagus, the ministry pitched upon admiral Balchen, who now sailed with a large fleet for this important service, with his flags hoisted on board the *Victory*, the largest and finest ship in the royal navy, and having joined sir Charles's Squadron, convoyed him to Gibraltar, the French at his approach retiring into Cadiz. After this, sir John proceeded to cruise on the coast of Portugal, in hopes of coming up with some of the Breſt fleet; but being informed that the French had sheltered themselves under the fortifications of Cadiz, he continued his course for England; and the 3d of October, 1744, being overtaken by a storm which dispersed the fleet, and the *Victory* being driven on the Caskets, sunk, and every person on board her perished. The crew consisted of eleven hundred. The whole nation shewed a generous concern for this terrible misfortune; and his late majesty settled a pension of five hundred pounds per annum on the admiral's lady during her life; and to perpetuate his memory, a small but elegant monument was erected for him in Westminster-abbey, in which his bust is well executed in the finest marble.

BALCONY, in architecture, a projection in the front of a house, or a kind of open gallery, for people to stand in, to behold any public show, or to take the air in. They are usually level with the first floor, and are made of wood or iron.

BALE, in commerce, is said of merchandizes packed up in cloth, and corded round very tight, in order to keep them from breaking. The bales are always to be marked and numbered, that the merchants to whom they belong may easily know them. A bale of cotton yarn is from three to four hundred weight; of raw silk, from one to four hundred; of lockram or dowlas, either three, three and a half, or four pieces.

BALE-GOODS, among the English merchants, such as are imported or exported in bales.

BALK, among builders, used by some for the summer-beam of a house; by others for the poles and rafters, which support the roofs of barns, &c. and sometimes for the beams used in making sea-holds.

BALL, a spherical and round body, either naturally so, or turned into that form. There are balls of common wood, of

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of box, of iron, &c. The word ball is also used to signify some tools and instruments of several arts and trades, because they bear some resemblance to balls.

BALL, in the military art, a composition of divers ingredients, generally of the combustible kinds, serving to burn, smok, give light, &c.

Fire BALLS, *globi incendiarii*, are bags of canvas filled with gun-powder, sulphur, salt-petre, pitch, &c. to be thrown by the soldiers, or out of mortars, in order to fire the houses, incommode trenches, advanced posts, or the like.

Light BALLS, *globi lucentes*, such as diffuse an intense light around; or they are balls which, being cast out of a mortar, or the hand, burn for some time, and illuminate the adjacent parts.

Smok or Dark BALLS, are those which fill the air with smok, and thus darken a place to prevent discoveries.

Sink BALLS, *globi satentes*, those which yield a great stench where fired to annoy the enemy.

Sky BALLS, *globi aerii*, are those cast on high out of mortars, and which, when arrived at their height, bursting like rockets, afford a spectacle of decoration. These are sometimes intermixed with crackers and other combustibles, making rains of fire, &c.

Water BALLS, *globi aquatici*, those which swim and burn a considerable time in the water, and at length burst therein.

BALL of a Pendulum, the weight at the bottom. In shorter pendulums, this is called the bob. See **BOB**.

BALL, among printers, a kind of wooden tunnel stuffed with wool, contained in a leather cover, which is nailed to the wood, with which the ink is applied on the forms to be wrought off. The press-man, holding one of these balls with either hand, first daubs them on the ink-block, and afterwards on the forms, which retain the ink necessary to make an impression.

Horse BALLS, among farriers, a kind of cordial medicine, administered in the form of balls, supposed of great virtue for feeding and strengthening sound, as well as healing and raising unsound horses. Markham's horse balls are a preparation of aniseeds, carthamums, elicampagne, and other ingredients wrought into a stiff paste, and thence formed into balls. They are cleansing and emollient, efficacious in colds, surfeits, and hard labour, and especially useful where any of the chief viscera are decayed: nothing raises a lean

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horse so soon, being partly food and partly physic. *Russ. Diet. Farr. Diet.*

Chewing BALLS are those which the horse keeps champing or masticating in his mouth, a considerable time, without swallowing. These are chiefly used for a lost appetite, a thing very incidental to horses. They are usually made of asafetida, liver of antimony, juniper, bay-wood, and pellitory of Spain, beaten and incorporated into a mass with verjuice. The method of administration is to wrap one of the balls in a linen cloth, and having a string fastened to it, make the horse chew it three or four hours at a time. *Russ. Diet.*

BALL and SOCKET is an instrument made of brass, with a perpetual screw, so as to move horizontally, vertically, and obliquely; and is generally used for the managing of surveying instruments, and astronomical instruments.

BALLAD, a species of song, or air, adapted to the lower class of people.

BALLANCE, see **BALANCE**.

BALLANCE of a Clock or Watch: See **CLOCK** and **WATCH**.

BALLAST, any heavy matter, as stones, gravel, iron, &c. thrown into the hold of a ship, to make her sink a proper depth in the water, that she may be capable of carrying a sufficient quantity of sail without oversetting.

BALLIAGE, a small duty paid to the city of London by aliens, and even denizens, for certain commodities exported by them.

BALLOON, or **BALLON**, in a general sense, any hollow body of a spherical form, be its composition or uses what they will.

BALLOON, in chemistry, a large receiver of a round form, and very short neck.

BALLOON, in architecture, a round ball or globe, placed on the top of a pillar, &c. by way of crowning.

BALLOON, in pyrotechny, a kind of bomb made of paste-board, and played off in fire-works, either in the air or water, in imitation of a real bomb.

BALLS, or **BALLETS**, in heraldry, make a frequent bearing in coats of arms, but acquire other denominations from their several colours. Thus, when the colour is or, they are termed *besants*; when argent, *plates*; when azure, *burts*; when gules, *torteaux*; when vert, *pomeis*; when sable, *agresses*; when purple, *gelsas*; when tanne, *oranges*; and when sanguine, *guzes*.

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BALLUSTER, in architecture, a kind of small pillar used in ballustrades.

BALLUSTRADE, a row or series of ballusters joined by a rail, and fixed on a terras or the top of a building by way of security; as also to inclose balconies, altars, fonts, staircases, bridges, &c.

BALM, see **BALSAM**.

BALM, in botany; see **BAUM**.

* **BALMERIUS**, lord, beheaded for high treason in August 1746. Balmerius had been bred to arms, and acted upon principle; he was unpolished in his manners, brave, rough, and resolute; eyed the implements of death with the most careless familiarity, and seemed to triumph in his suffering.

BALNEUM, a term used by chemists to signify a vessel filled with some matter, as sand, water, or the like, in which others are placed for performing various operations that require less heat than a naked fire.

BALNEUM Arenosum, or *Siccum*, a sand, or dry heat; a vessel filled with sand, ashes, or filings of steel.

BALNEUM Mariæ, or *Maris*, a vessel filled with water, which is made to boil, and in which the vessels containing the ingredients are placed.

BALNEUM Vaporis, a vapour bath.

BALSAM, *Balsamum*, an oily, resinous, and odorous substance, flowing either spontaneously, or by incision, from certain plants, of great virtues in the cure of several disorders.

BALSAM of Gilead, or of *Mecca*, *Opobalsamum*, is the most precious of all balsams; and is commonly called balm of Gilead. It is the produce of certain trees, which grew formerly in the valley of Jericho; and were removed to Grand Cairo, and afterwards to Mecca, where the balsam plantation is now guarded by janissaries, and the resinous juice collected for the sultan only. We cannot imagine, that what is sold by the druggists under the name of this balsam, at no very great price, is the true sort: it is either the native juice of another kind of tree, or what is more probable, a composition of balsam of copaiba with distilled oils, &c. Hence we meet with opobalsams very different from one another, or agreeing only in external appearance. The true balsam is of a pale yellowish colour, clear and transparent, about the consistence of Venice turpentine; of a strong, penetrating, agreeable, aromatic smell, and a slightly bitterish pungent taste: by age it becomes yellower, browner, and thicker,

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losing by degrees, like essential oils, some of its finer and more subtle parts. To spread, when dropped into water, all over the surface, and to form a fine, thin, rainbow-coloured cuticle, so tenacious, that it may be taken up entire by the point of a needle, were formerly held infallible criteria of the genuine opobalsam. But it has been observed, that other balsams, when of a certain degree of consistence, exhibit these phenomena equally with the genuine.

It is used in medicine to open obstructions of the lungs, and to heal erosions from acrimony, and the worst kinds of ulcerations. It is also prescribed in asthma, pleurisy, and whenever expectoration is necessary, in internal bruises, and to cleanse the urinary passages.

BALSAM of Tolu, is of a thicker consistence than the foregoing, and more of a brownish colour. When fresh, it has an exceeding pleasant smell, somewhat resembling that of citrons. It is the produce of New Spain, and is said to exude in very hot weather from incisions made in the bark of a small tree of the fir-kind, called tolu. This balsam is one of the most elegant and grateful of the substances of this class, and does not lose much of its fragrance when by age it grows consistent. It yields very little essential oil in distillation, but impregnates the distilled water strongly with its flavour. By dissolving in this water, in a gentle warmth, a proper quantity of fine sugar, we obtain a balsamic syrup, greatly superior to that made in the common manner with a decoction of the balsam. It is given in convulsions, and other disorders of the breast, sometimes in the form of pills, and sometimes in electuary; but the best form of giving it is in emulsion, dissolved in the yolk of an egg, and then mixed with water.

BALSAM of Copaiba, *Copahu*, *Copaif*, *Campais*, *Copalywa*, or *Gamelo*, is obtained from a tree of the same name, growing in the Brazils, near Rio de Janeiro. This balsam is of a pale yellowish colour, and thin consistence. It is observable, that on mixing this juice with the watery spirit of sal ammoniac, made by quicklime, a frothing, or effervescence, as it is called, ensues, stronger and of longer continuance than that produced by the same spirit with any other natural balsam: by this mark we may distinguish the genuine copaiba from the thin resin of the turpentine or fir tree, which is frequently mixed with

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or vended for it. This balsam is at present of very common use as a medicine.

The copaiba-tree is one of the large forest trees of Brazil and some other parts of America. Mr. Ray calls it *Arbor balsamifera Brasiliensis fructu, monas peruv.* The wood is of a deep red colour, and great hardness; and hence is employed in ornamental mechanic works, and is said to be used also in dying. The balsam is extracted by making deep incisions in the trunk of the tree, in the middle of the summer heats. It is said that twelve pounds issue from one tree in a few hours; but that after once bleeding, it never affords any more. It is more deterfivè and more fragrant than common turpentine; passes very quickly by urine, and greatly assists in cleansing those passages; for which reason it is frequently given in gonorrhœas, and all obstructions and ulcerations of those parts.

BALSAM of Peru is obtained from certain trees of Peru and Mexico, differing somewhat from one another in appearance, and somewhat also in the quality of their juices. There are three sorts of balsam of Peru: 1. A pale yellowish, called white, in appearance somewhat resembling the opobalsam, and like it of a strong smell: this is the native juice, collected and preserved in the same state wherein it issues from the tree. Among us, it is rarely or never met with. 2. A dry balsam, or the foregoing inspissated by the sun's heat, in calabashes, or gourd-shells, in which it is sometimes brought into Europe: this has somewhat of a reddish colour, and still smells very agreeably. 3. The common or black Peruvian balsam of the shops. This sort is artificially extracted from the bark, branches, and leaves of the tree, by cutting them in pieces, and boiling them in water. The balsam is said to separate, and arise to the surface, from whence it is taken off.

It is of a thick consistence, like honey; of a dark black colour in the mass, but when spread thin of a clear reddish or yellowish brown, of an agreeable strong smell, somewhat approaching to that of a mixture of benzoin and storax, and of a bitterish pungent taste, easily inflammable, not in the least miscible with water, nor rendered turbid or white on being agitated with that fluid. It becomes soluble in water, like the other balsams, by the mediation of yolk of eggs, or of sugar; when dissolved by the latter, it soon separates from the water, whilst the former keeps it much longer suspended. It

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is of a heating and drying quality, and is frequently used externally in the cure of wounds. The perfumers also use it on account of its agreeable smell.

Odoriferous BALSAMS, a fragrant kind of unguents, generally of a thick consistence, composed of some fatty, dense juice, joined with some distilled oils of various kinds. Boerhaave's method of preparing these balsams, is this: Melt an ounce of fine pomatum, in a China vessel, over a small and perfectly clear fire; then gradually add a dram of white wax, shaved into thin pieces: after these are perfectly blended together, remove the vessel from the fire; and when the matter begins to thicken in cooling, drop in, by slow degrees, a dram of any of the fragrant essential oils; keep the whole continually stirring, all the time the oil is dropping in, that it may perfectly mix: after which, set the vessel in cold water, that the whole matter, immediately condensing by the cold, may keep in the oil and spirit. When the balsam is thoroughly cold, put it immediately up in vessels of lead or pewter; and, if these are close covered, it will keep perfect a great many years. Instead of pomatum and wax, the expressed oil of nutmeg may be used in this process, after it has been washed in water, till perfectly insipid, white, and inodorous. These balsams are prepared as rich perfumes, to raise the languid spirit; and the noblest and richest of the essential oils should therefore be used in them. The oils, principally directed by Boerhaave to this purpose, are those of balm, calamus aromaticus, cinnamon, cedar, citron, cloves, jacin, lavender, white lillies, marjoram, mace, nutmegs, origanum, oranges, both those of China and Seville; roses, rhodium, and yellow saunders; to which may be added, the natural balsams of Peru and Gilead; these two being spontaneously fragrant without distillation. *Boerhaave's Chemistry.*

BALSAMICS, in pharmacy, softening, restoring, healing, and cleansing medicines, of gentle attenuating principles, very friendly to nature. These medicines, are not only grateful and agreeable to the constitution, but act upon the fluids, as well as the solids, of human bodies; diffusing their virtues through every part, and supplying the blood and humours with a seasonable reinforcement of sulphureous, warm, and ethereal parts, increasing their intestine motions, and conveying vigour to the vital juices. These medicines may be used with great success, both internally and

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and externally, in all diseases of the head, nerves, spinal marrow, stomach and heart; such as palsies, apoplexies, numbness and torpor of the senses, weakness of the memory, difficulty of hearing, excessive weakness and faintings; they are also of singular service in most disorders of the stomach and intestines, and are exquisitely adapted to the old and infirm.

BALSAMINA, *Balsamine*, in botany, the name of a genus of plants, whose flower is of the polypetalous anomalous kind; and is, in some species, four-leaved, and, in others, six-leaved. In the four-leaved flowers, the upper leaf is arched, and the lower hollowed, and terminated by a tail, and the two side-leaves are large. In the six-leaved flowers of this genus, the flower leaf has no tail.

* **BALTIC SEA**, a great gulph of the German ocean, between the coasts of Germany, Poland, Sweden, and Denmark. It forms several other gulphs, as, that of Bothnia, Finland, Livonia, and Dantzick, and flows into the ocean through a strait called the Sound. Yellow amber is found here in great quantities. It is generally frozen three or four months in the year.

BALTIMORE, a town of Ireland, in the county of Cork, seated on a headland, which runs fifteen miles into the sea, fifteen miles south-west of Ross. Long. 9. 10. W. lat. 51. 15. N.

BAMBOE, in botany, a plant that multiplies very much by its root, from which springs a ramous or branchy tuft, after the manner of the European reeds; of which, as well as the sugar-cane, it is a species. The Indian bamboe is the largest kind of cane hitherto known. It is of an extraordinary height and bigness when it bears its blossom; each shoot or cane is often, at the bottom, as large as a man's thigh, and decreases gradually to the top, where it bears a blossom or flower like our reeds, in their proper season.

The bamboe grows in all the maritime countries in the East Indies. Its leaves are like those of the other canes or reeds, but neither so long nor so broad at their base. With these bamboes the Indians build their houses, and make all sorts of furniture, in a very ingenious manner.

From the time of their first appearance, till they attain their full perfection, when they are either cut down, or of themselves begin to dry, most of their tubes contain a quantity of water; with this remarkable difference, that at full moon they are entirely or very nearly full; and with the decrease of the moon, the water ebbs, till

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at the conjunction little or none is to be found. This water is said to be an excellent preservative against the ill consequence of any bruises; at least it is drank as such by all who come from the mountains, where such accidents are unavoidable.

BANANA-TREE, a species of the musa or plantain, growing plentifully in the East and West Indies. Its leaves are near two yards long, and twelve inches wide. The fruit is six or seven inches long, and covered, when ripe, with a yellow and tender skin. It grows upon a stalk, bearing only one single cluster or bunch, which perhaps consists of forty or fifty bananas. When the bunch is gathered, they cut off the stalk, otherwise it would bear no more fruit. The pulp of the fruit is as soft as marmalade, and of a very pleasant taste; it is said to be very nourishing, to excite urine, and provoke to venery.

BAND, in a general sense, a small, narrow ligament, wherewith any thing is bound, tied, or fastened.

BAND of Soldiers, in military affairs, those who fight under the same flag or ensign.

BAND of Pensioners, a company of one hundred and twenty gentlemen, who receive yearly one hundred pounds for attending on his majesty on solemn occasions.

BANDAGE, in surgery, a filler, roller, swathe, &c. applied to any part of the body. The matter of which bandages are generally composed, is linen cloth; the necessary conditions of which are, first, that it be clean, partly for decency, and partly that it may not be offensive to the wound. Secondly, that it be not quite new, but wore for some time, which will render it more soft and smooth; but it ought not to be wore thin, because that would make the bandage too weak, and subject to break. Thirdly, that it be strong, consisting of threads neither very coarse, nor very fine. Fourthly, that it have no loose threads, knots, or hems, nor any seams that can be avoided; but if the length of the bandage should make seams necessary, they should be as even and as few as possible.

BANDELET, or **BANDLET**, in architecture, any little band, or flat moulding, as that which crowns the Doric architrave.

BANDEROLL, a little flag, extended more in length than breadth, used to be hung out on the masts of the vessels, &c.

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BANDITTI, companies of highway-men common in Italy, Sicily, and France; but sometimes also used, in a more general sense, for robbers, pirates, out-lawed persons, ruffians, &c.

BANIANS, a Pagan people, spread over most parts of the East Indies; they may be distinguished from the Mahomedans, by their dress; for they do not shave their heads, and have a yellow spot in their foreheads, made by the priest. Their women do not cover their faces, and their garments are quite open before, from their breasts to their navels. They colour their teeth black, and think it disgraceful to have white teeth, like dogs and monkeys; they are very fond of bracelets and jewels, for they cover their ears, in a manner, all over with pearls. The children of both sexes go naked till they are five years old. The men in those parts, like the Jews in Europe, deal in every sort of commodity, but provisions of flesh or fish, for as they eat no kind of animal food themselves, they will not sell or distribute it to others. They are the most humble and patient people in the world. Whenever they quarrel, it never arises to blows. The very killing of a fly with them is criminal. The horror they have for blood will never permit them to go to war; and their feeble vegetable diet, with the extreme heat of the sun, which exhales their spirits, renders their constitutions weak and effeminate, producing a tractable disposition, and a smooth regular deportment. They have as many different superstitions as they have trades or callings among them. They marry their children at seven, eight, or nine years of age, and the girls seldom or never stay till twelve. When the wedding-day arrives, the parents sit in a hall round a fire, and cause the bridegroom and the bride to take three turns about it, during which the priest pronounces certain words, which serve for a nuptial benediction. The Banian widows are not permitted to take a second husband, but have their hair cut off, and their jewels taken away, which is the reason they are so ready to burn themselves with the bodies of their dead husbands. But the Mahomedans will not permit this to be practised so much as formerly, nor can they do it at all without leave from the governor. Those widows that cannot bear a single life, list among the dancers, and then they are free for every body. The men may marry again more than once, and even when the first wife is alive,

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if she is barren. However, the first bears the sway in the family.

The Banians believe in general that there is but one God, creator of the universe, and that there are subordinate deities, which are the objects of worship. Their many different idols in gold, silver, brass, &c. have a strange variety of shapes, and it would take up a volume to describe them. Their pagods or temples are not only in towns, but upon the highways, in mountains and wood: where they keep lamps perpetually burning, and some of them have no other ornaments but fantastical paintings on the walls. A principal part of their religion consists in outward purifications, of which, bathing or washing is the principal. They hold the transmigration of souls, and affirm they pass into the bodies of beasts. Those that enter into the body of a cow are supposed to be most happy, and that the expiation of their sins will be sooner complete, than if they had animated any other beast.

BANISHMENT, a kind of punishment, whereby the guilty person is obliged to leave the realm.

By Magna Charta, none shall be outlawed, or banished his country, but by lawful judgment of his peers, according to the law of the land, 9 Hen. III. 29.

BANK, in commerce, a common repository, where many persons agree to keep their money, to be always ready at their call or direction: or certain societies or communities, who take the charge of other people's money, either to improve it, or to keep it secure. There are banks of various kinds, and different in the nature of their constitutions and establishments; some are instituted wholly on the public account, and put under the direction of the magistrates, as the famous bank of Amsterdam, where the money deposited therein shall be always kept for the use of the proprietors, and shall never be let out for profit or advantage. A second sort of bank is such as consists of a company of monied men, who being duly established, and incorporated by the laws of their country, agree to deposit a considerable fund, or joint stock, to be employed for the use of the society; as lending money upon good security, buying and selling bullion, gold and silver, discounting bills of exchange, &c. A third sort is the banks of private men, or partnerships, who deal in the same way as the former, upon their own single stock, or credit; and such are the Lombard-street, or other bankers, as they are called. There are public

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public banks established in most of the trading cities of Europe, as in Venice, London, Paris, Amsterdam, Hamburgh, &c. The bank of Venice is the most ancient. It is established by a solemn edict of the common-wealth, which enacts, that all payments of wholesale merchandize, and letters of exchange, shall be in bank notes, that all debtors shall be obliged to carry their money to the bank, and all creditors receive their money from the bank; so that payments are performed by a simple transfer, from the one person to the other. In matters of retail, effective payments are sometimes made, which do not diminish, but rather augment the stock, by reason of the liberty of withdrawing the money at pleasure.

* *BANK of England* was established in 1693.

BANK, in natural history, an elevation of the ground, or bottom of the sea, so as sometimes to surmount the surface of the water. In this sense, bank amounts to much the same as flat, shoal, &c. There are banks of sand, and others of stone, called also shelves, or rocks. In the North-sea they also speak of banks of ice, which are large pieces of that matter floating.

BANKS at sea, are usually distinguished by a buoy, post, or the like. On charts, sand-banks are usually marked by little dots, and banks of stone, by crosses. The colours of the buoys are also varied accordingly, sand-banks being denoted by light-coloured buoys, and rocks by black ones. In large rivers, as the Elbe, &c. sand-banks, by high tides and inundations, are liable to change places; care is therefore taken to shift the buoys from time to time, to shew the true channel of the river. An exact knowledge of the banks, their extent, and the depth of water on them, makes the most essential part of the science of a pilot, and master of a ship; if the vessel be large and draw much water, great attention will be necessary to keep clear of the banks; on the contrary, if it be small, the same banks afford a sure asylum, where it may brave the largest and stoutest vessels, which dare not follow it here.

BANKER, one who traffics and negotiates in money; who receives and remits money from place to place, by commission from correspondents, or by means of bills or letters of exchange. On account of some liberties which bankers have taken, of risking in Exchange-Ally, the property of those who have deposited cash with them, the public have not that confidence in them they lately had; it being custo-

mary now for merchants to lodge their large sums in the bank, and only to keep their running cash at bankers.

In Italy, the trade of a banker does not derogate from nobility; which is the reason why most of the younger sons of the quality apply themselves to that employment, in order to support their families. The monied goldsmiths, in the reign of king Charles the Second, first acquired this name.

BANKING, the making of banks to oppose the force of the sea, rivers, or the like, to secure the land from being over-flowed. With respect to the water which is to be kept out, this is called banking; with respect to the land, which is thereby to be defended, imbanking.

BANKING, in a salt-work, the raising a fence against the sea, whereby its waters may be kept out, excepting so much as is necessary for the preparation of the salt.

BANKRUPT, a person that by trading hath gotten other persons goods into his or her hands, and concealeth himself from his creditors. It is not buying or selling of lands, but of personal things, that will make a person liable to be a bankrupt; nor is it buying only, but both. Every one that gets his livelihood by buying and selling in trade, may come under a state of bankruptcy upon his failing; but adventurers in the East-India company, members of the bank of England, or of the South-Sea company, shall not be adjudged bankrupts, in respect of their stock: also no person concerned as receiver-general of the taxes, &c. shall be a bankrupt. If a merchant gives over trade, and some years after becomes not solvent for money owed while a merchant, he is a bankrupt; but if for new debts continued on new security, it is otherwise.

BANKRUPTCY, the failure, absconding, and relinquishing of traffic in a merchant, a banker, or other trader. See **BANKRUPT**.

BANN, or **BAN**, *Bannum*, or *Bannus*, in the feudal law, a solemn proclamation or publication of any thing. Hence the custom of asking, or bans, before marriage.

BANN of the Empire, an imperial proscription, being a judicial punishment, wherewith such as are accessory to disturbing the public peace, are judged unworthy of the immunities and protection of the empire, and are out-lawed or banished, &c.

BANNER, a square flag, or the principal standard belonging to a prince.

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BANNERET, an ancient order of knights, or feudal lords, who possessing several large fees, led their vassals to battle under their own flag, when summoned thereto by the king. This order is certainly most honourable, as it never was conferred but upon some heroic action performed in the field. Anciently there being but two kinds of knights, great and little, the first were called bannerets, the second batchelors; the first composed the upper, and the second the middle nobility.

* **BANOCKBURN**, *Battle of*, June 25, 1314, where Edward II. was defeated by Robert de Brus. Edward II. having received intelligence that the Scots had made irruptions into England, where they burned Hexham, and several towns, and not only laid the country under contributions, but compelled the inhabitants to purchase a truce, on condition that they should not for the future oppose the Scots at any time in their invasions of England. The king was no sooner apprized of these transactions, than he issued orders to the cinque ports, and maritime powers to equip their fleet, and be at Berwick on the day of rendezvous. He sent the earl of Pembroke, as guardian of Scotland, to check the progress of the enemy in the northern countries: he wrote to the earl of Ulster to raise the Irish chieftains, with their vassals, and bring them to his assistance: he ordered new levies to be made in Yorkshire, and other parts of the kingdom, and assembled such an army as England had never brought into the field upon any former occasion. The king having kept his Easter at Ely, set out for York, and from thence proceeded to Berwick, which he reached about the beginning of June. As the time drew near for the surrender of Stirling, he began his march immediately for the relief of that fortress; and entered Scotland at the head of one hundred thousand fighting men, attended by an incredible number of waggons and camp followers, so as to cover the whole face of the country. They marched without order, as to an assured victory, and had already parcelled out the lands of the vanquished. They were suffered to advance without molestation from Robert de Brus, who had resolved to hazard a battle; and for that purpose occupied an advantageous post in the neighbourhood of Stirling, where he did not doubt of being attacked by the English. His army consisted of thirty thousand chosen men, trained up

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to war and hardship under his own eye and example, who were determined to conquer or die in defence of their king and country. With these he took post on a piece of ground bounded on one side by a morass, and on the other by an inaccessible mountain; so that his flanks could not be attacked by the enemy's cavalry. A rivulet called Bannockburn ran in his front; and this he had rendered almost impassible, by digging holes in the bed of the channel, in which he fixed sharpened stakes for the destruction of the English horse. Large pits were likewise made between this rivulet and his camp, provided with the same instruments of annoyance, and artfully covered with turf and boughs to deceive the aggressors. As the van of Edward's army approached Stirling under command of the earls of Gloucester and Hereford, Henry de Bohun, perceiving a body of Scots at the side of a wood, advanced against them with his Welsh followers, and was drawn into an ambush by Robert de Brus, who sallied in person upon them from a thicket, and riding up to Bohun cleft his skull with a battle-axe. The English being reinforced by their rear, a sharp dispute ensued, in which the earl of Gloucester was dismounted, and the lord Clifford repulsed with considerable damage. As fresh supplies of men arrived from both armies, in all probability this conflict would have ended in a general engagement, had not night parted the combatants. The soldiers lay upon their arms, and they, as well as the horses, were so fatigued with their march, and the want of repose, that the most experienced officers in the army proposed to defer the attack until the people should be refreshed. This advice was rejected by the young nobility, who were eager to signalize their courage; and it was resolved to give battle to the enemy in the morning. The troops were accordingly drawn up in order of battle; the wings, consisting of cavalry, being commanded by the earls of Gloucester and Hereford; and the king in person taking his station in the centre. Robert de Brus formed his army into three lines, and a body of reserve, which was commanded by Douglas and the lord high steward of Scotland. As he had little confidence in his horse, he ordered the troopers to dismount: he placed his brother Edward at the head of the right wing, Randolph conducted the left, and he himself commanded the main body. When the English army was on

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the point of charging, a dispute arose about the post of honour, between the earls of Gloucester and Hereford; and the former, impatient of controul, advanced immediately to the charge with great impetuosity. But their career was soon stopped by the hidden pits and trenches, into which the horses tumbled headlong, and were flaked in a miserable manner. This unforeseen disaster produced the utmost confusion; and the Scots taking advantage of their disorder, fell upon them sword in hand, with such fury that the greatest part of them were cut in pieces. The earl of Gloucester's horse being killed, he fell to the ground, where he was immediately trodden to death; and Sir Giles de Argentain seeing him fall, sprung forward to his rescue: but that gallant officer was slain, together with Robert de Clifford, Payen de Tibertot, and William Mareschall. While this havock was making in the right wing of the cavalry, the English archers advanced against the right wing of the enemy, and galled them so effectually with their arrows that they were upon the point of giving ground, when Douglas and the Steward, making a wheel with their body of reserve, fell upon the flanks of the English, and routed them with great slaughter. Mean while the centre, commanded by Edward, moved on against the main body of the Scots, and met with a very warm reception from Robert de Brus, who fought in the front of the line with unequalled valour. The English were already dispirited by the destruction of their wings, and the loss of their bravest officers, when the boys, and other followers of the Scottish camp, who viewed the battle from a neighbouring hill, perceiving the success of Douglas and the Steward, began to shout aloud, and run towards the field for the sake of plunder. The English, startled at their acclamations, and seeing such a multitude in motion, imagined they were succours coming to reinforce the enemy; and on this supposition betook themselves to flight with the utmost precipitation. Those who attended the king hurried him off the field towards the castle of Stirling, into which, however the governor would not give him admittance, because he was obliged by his capitulation to surrender the castle to the victor; so that Edward fled to Dunbar, where he was cordially received by Patrick earl of Marche, who had been always a faithful adherent to his family.

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Meanwhile confusion, rout, and consternation, prevailed among the English forces; and victory declared for the Scottish king, who improved it to the best advantage. A great number of his enemies were slain upon the spot, as well as in the pursuit; and few or none would have escaped, had not his soldiers been so intent upon the booty, which is said to have amounted in value to two hundred thousand pounds. The earl of Hereford, with John Giffard, John de Wilyngton, the earl of Angus, the lords Mounthermer, Percy, Nevil, Scroope, Lucy, Acton, Latimer, Segrave, Berkley, Beauchamp, and other barons, to the number of five and twenty, were taken prisoners, together with a great multitude of bannerets and knights. The number of the slain amounted to about seven hundred lords, knights, and esquires, and twenty thousand common soldiers. Nor was the victory purchased without bloodshed on the side of Brus, who lost above four thousand of his best men on the field of battle. Douglas was detached with four hundred cavalry to pursue Edward, who with great difficulty, reached the castle of Dunbar, in such trepidation, that he made a vow to found a house in Oxford for four and twenty Carmelite divines, in case he should escape the danger by which he was encompassed. As his pursuers still hovered in the neighbourhood, he would not venture to prosecute his journey by land; but embarked on board of a small vessel, in which he was transported to Berwick, where he thought himself secure. Robert de Brus treated the prisoners with great humanity. He expressed unfeigned sorrow for the death of Sir Giles de Argentain, to whose worth he was no stranger. The bodies of Gloucester and lord Clifford were sent to the king of England: the lord Mounthermer, as the ancient friend of Brus, was dismissed without ransom; the slain were decently interred, the wounded carefully attended; and the prisoners assured of liberty as soon as a reasonable cartel could be established. Robert's moderation was altogether admirable. Instead of prosecuting this victory by marching into England, while the whole kingdom was filled with terror and consternation, he proposed reasonable conditions of peace to Edward; and commissioners were appointed by both princes to treat of an accommodation. The conferences were opened at Durham; but the Scottish deputies insisting, as a preliminary, upon the

the king's recognizing the title of Brus, and the independence of the Scottish crown, Edward refused to hear upon such terms, and the negotiation proved ineffectual.

BANQUET, in the manege, that small part of the branch of a bridle that is under the eye.

BANQUET, or **BANQUETTE**, in fortification, a little foot-bank, or elevation of earth, forming a path, which runs along the inside of a parapet, upon which the musketeers get up in order to discover the counterscarp, or to fire upon the enemy in the moat, or in the covert way.

BANTAM-WORK, a kind of Indian painting, and carving on wood, resembling Japan work, only decorated with a great variety of gaudy colours. Bantam-work is of less value among the connoisseurs, though sometimes preferred, by the unskilful, to the true Japan-work. Formerly it was in more use and esteem than at present, and the imitation of it much practised by our japanners. There are two sorts of Bantan, as well as of Japan-work; as, in the latter, some are flat, lying even with the black, and others high and embossed: so, in Bantam-work, some are flat and others incut, or carved into the wood, as we find in many large screens; with this difference, that the Japan artists work chiefly in gold and other metals, and those of Bantam generally in colours, with a small sprinkling of gold here and there: for the flat Bantam-work is done in colours, mixed with gum-water, proper for the thing designed to be imitated.

BAPTISM, in theology, a sacrament whereby a person is admitted into the Christian church. Grotius imagines the rite of baptism had its original from the time of the deluge; immediately after which he thinks it was instituted in memory of the world having been purged by water. Some learned men think it was added to circumcision, soon after the Samaritan schism, as a mark of distinction to the orthodox Jews. Spencer, who is fond of deriving the rites of the Jewish religion from the ceremonies of the Pagans, lays it down as a probable supposition, that the Jews received the baptism of proselytes from the neighbouring nations, who were wont to prepare candidates for the more sacred functions of their religion by a solemn ablu-
tion; that, by this affinity of sacred

rites, they might draw the Gentiles to embrace their religion, and the proselytes (in gaining of whom they were extremely diligent) might the more easily comply with the transition from Gentilism to Judaism. It is to be observed, under this head of Jewish baptism, that the proselyte was not to be baptized, till the wound of circumcision was perfectly healed; that then the ceremony was performed by plunging him into some large, natural, receptacle of water; and that baptism was never after repeated in the same person, or in any of his posterity, who derived their legal purity from the baptism of their ancestor. In the primitive Christian church, the office of baptizing was vested principally in the bishops, and priests, or pastors of the respective parishes: but, with the consent of the bishop, it was allowed to the deacons, and, in cases of necessity, even to laymen to baptize; but, never, under any necessity whatever, was it permitted to women to perform this office. Nor was it enough, that baptism was conferred by a person called to the ministry, unless he was also orthodox in the faith. This became matter of great bittle in the church; and hence arose the famous controversy between Cyprian, and Stephen bishop of Rome, concerning the re-baptizing those who had been baptized by heretics, Cyprian asserting that they ought to be re-baptized, and Stephen maintaining the contrary opinion.

The persons baptized were either infants, or adults. To prove that infants were admitted to the sacrament of baptism, we need only use this argument; none were admitted to the eucharist till they had received baptism: but in the primitive church, children received the sacrament of the Lord's-supper, as appears from what Cyprian relates concerning a sucking child, who so violently refused to taste the sacramental wine, that the deacon was obliged forcibly to open her lips, and pour it down her throat. We might add the testimonies of Irenæus, and Cyprian; but it will be sufficient to mention the determination of an African synod, held A. D. 254, at which were present sixty-six bishops, who unanimously decreed, that the baptism of children was not to be deferred long, but that the grace of God, or baptism, should be given to all, and most especially unto infants. As for the time, or season, at which baptism was usually administered, we find

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It to have been restrained to the two solemn festivals of the year; Easter and Whitsuntide: but it is to be observed, that these stated returns of the time of baptism related only to persons in health: in other cases, such as sickness, or any pressing necessity, the time of baptism was regulated by occasion and opportunity.

The place of baptism was at first unlimited; being some pond or lake, some spring or river, but always as near as possible to the place of public worship. Afterwards they had their baptisteries, or, as we call them, fonts, built at first near the church, then in the church-porch, and at last in the church itself. There were many in those days who were desirous to be baptised in the river Jordan, out of reverence to the place where our Saviour himself had been baptised.

The person to be baptised, if an adult, was first examined by the bishop, or officiating priest, who put some questions to him; as first, whether he abjured the devil and all his works; secondly, whether he gave a firm assent to all the articles of the Christian faith: to both which he answered in the affirmative. Whether the use of sponsors was as old as the Apostles days, is uncertain: perhaps it was not, since Justin Martyr, speaking of the method and form of baptism, says not a word of them.

BAPTISMAL, belonging or relating to baptism; as baptismal vow, fonts, presents, &c.

BAPTISTS, in church history, the name by which the anabaptists love to distinguish themselves.

BAPTISTERY, the place in which the ceremony of baptism was anciently performed. The baptisteries were very large and capacious, because the stated times of baptism returning but seldom, there were usually great multitudes to be baptised at the same time. Anciently there was but one baptistery in a city, and that at the bishop's church. At Pisa, Bononia, Orvieto, Parma, and even at Florence itself, they are said to have but one baptistery and font for the whole city at this day. In length of time, baptisteries were set up in country parishes, with the special allowance however of the bishop.

BAR, in a general sense, a slender piece of wood or iron for keeping things close together.

BAR, in courts of justice, an inclosure, where the counsel are placed to plead causes. It is also applied to the benches

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where the lawyers or advocates are seated, because anciently there was a bar to separate the pleaders from the attorneys and others. Hence our lawyers, who are called to the bar, or licensed to plead, are termed barristers.

BAR, in law, plea of a defendant which is said to be sufficient to destroy the plaintiff's action.

BAR, in heraldry, an ordinary resembling the fess, but much smaller. It differs from the fess only in its narrowness. The fess is also confined to a single place, whereas the bar may be placed in any part of the shield.

BAR, in horsemanship, the highest part of a horse's mouth, between the grinders and tusks.

BAR, in music, a stroke drawn perpendicularly across the lines of a piece of music, including, between every two bars, a certain quantity, or measure of time, which is different, according as the music is either triple or common. In the former the measure of three crotchets is included, in the latter four. The principal use of bars is to regulate the beating of time.

BAR, in hydrography, a bank of sand, gravel, &c. lying before the mouth of a river, harbour, &c. which obstructs the passage, and sometimes prevents the navigation.

BAR-SHOT. See **SHOT**.

BARACKS. See **BARRACKS**.

BARALIPTON, among logicians, the first indirect mode of the first figure of syllogism.

BARBACAN, or **BARBICAN**, the outer wall, or exterior defence of a city or fortress.

BARBACAN is also a fort at the entrance of a bridge, or in the out-let of a city, having a double wall with towers. It also denotes an aperture made in the walls of a fortress, to fire through upon the enemy.

BARBACAN, in architecture, a canal or opening left in the wall, to give room for the water to run in and out, when buildings are erected in places liable to be overflowed, &c.

* **BARBADOES**, an island, the easternmost of the windward islands of North America. It is thirty-two miles in length, and twenty-two in breadth. The air is very hot, and would be much more so, were it not for the trade-wind, which constantly blows from the east, except there chance to be a hurricane in July and August; but this they are not much subject

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to. It is a plain country, and the land was very fertile, but it is no wonder that length of time should begin to wear it out for want of manure. The fields are always green. The island produces sugar, indigo, cotton-wool, ginger, and rum. Their fruits are oranges, ananas, or pine apples, citrons, limes, guavas, plantains, &c. It also produces a kind of petroleum called Barbadoes tar, which rises out of the earth, and is of great use in medicine. Barbadoes has about twenty thousand white inhabitants, and one hundred thousand negroes. They receive most of their corn, cattle, flesh, and salted fish, from the northern colonies, and their clothes and furniture from England. There are but few trees in this island. The capital is Bridge-Town.

BARBARA, in logic, is a name given by the schoolmen to the first mode of the first figure of syllogisms.

BARBARISM, in grammar, an offence against the purity of style or language; or a coarse expression, not used by polite authors.

* BARBARY, a large country of Africa, bounded on the east by Egypt, on the west by the Atlantic Ocean, on the south by Mount Atlas, and the Desert of Barca, and on the north by the Mediterranean Sea. It is about two thousand miles long, and seven hundred and twenty broad, in some parts. It is situated between seven and forty-four degrees of longitude, and twenty-five and thirty-seven degrees of latitude. This country, is the finest in the north part of Africa, for the soil is fertile, and produces all the fruits which grow in Spain, Italy, and the south of France. It also produces a great quantity of dates, Indian corn, and cotton. The sheep have large tails, generally weighing twenty-five pounds each. Their horses, called Barbs, are greatly admired for their beauty and strength. They have a great number of camels, and some elephants; also lions, leopards, tigers, panthers, buffaloes, and monkeys. They export barbs, cotton, and linen cloth, corn, dried fruit, figs, raisins, dates, Turkey and Morocco leather, and coral. The principal rivers are the Ghir, the Ziz, and the Dras. The chief mountains are the Atlas, which gives its name to the Atlantic or Western Ocean, and runs parallel to the coast at some distance, the whole length of Barbary. Barbary is divided into four states, Morocco, Algiers, Tunis, and Tripoli, which lie along the Mediterranean Sea, and the Ocean, from west

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to east. The original inhabitants of Barbary are the Moors, who dwell chiefly in Morocco and about Mount Atlas. In the first century after Mahommed, the Arabs over-ran all Barbary, and now inhabit the plains. Another sort of inhabitants are the Turks, who, in the sixteenth century, made themselves masters of the coasts and towns of Algiers, Tunis, and Tripoli. The languages spoken here are the Moorish; the Arabic spoken by the Arabs; the Turkish by the Turks; the Gemic, or Lingua Franca, is spoken on the coasts. Morocco has princes of its own, of the race of Mahommed; hence they are called sharif, or noble, and they prefix the title of muley to their name: we call them emperors. Algiers is governed by a prince called the dey, under whom each of the provinces is governed by a bey, which is the title of the sovereigns of Tripoli and Tunis. These last three may be said to be republics of soldiers, under the government of the Turks.

* BARBARY (the desert of) is bounded on the north by Barbary, on the east by part of Egypt and Nubia, on the south by Negroland and Guinea, and on the west by the Western Ocean. It is seated between thirty minutes, and forty-five degrees thirty minutes of longitude, and between fifteen and twenty-seven degrees of latitude; it is two thousand five hundred and twenty miles long from west to east, and seven hundred and twenty broad from north to south in some parts. This desert is barren, sandy, and hot, but agrees well enough with the natives, though the caravans are often reduced to great extremities in crossing this country to and from Negroland. There are few rivers or mountains of note; the most remarkable are the mountains along the sea-coast, and the river St. Antony, which falls into the ocean to the south of cape Blanco. The country is divided into five parts, on account of the different tribes that inhabit it, Sanhaga, Swenziga, Twarga, Lamptun, Berdoa, and Levata, lie one after another from west to east. The people have no rule nor legal form of government; their dress is a piece of coarse cloth, which covers a small part of their bodies; they have a small turban of black cloth on their heads, and their principal men wear a short gown of blue cotton, which reaches down to their knees, with wide sleeves; they ride on dromedaries or camels, between the two bosses, or between the boss and the neck; they use no stirrups nor spurs, but prick the

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the beast with a goad; the dromedaries used for riding have the gristles of their noses bored, through which they run a leathern strap, and use it instead of a bridle. Instead of beds, they have mats made of reeds and canes; and their tents are of cloth made with camel's-hair, or fibres of the date-tree; they have no bread, nor any kind of grain, but are nourished chiefly with camel's-milk in the morning; and at night they eat flesh, when they can get it boiled in milk; they have no plates, trenchers, knives, nor forks, but take a piece in their hand, and eat it like a piece of bread; they eat the broth in the hollow of their hands instead of spoons; while they have milk, they can shift without water, which they sometimes do for several weeks together, when water is hard to come at; the camels also live without water, when they have no grass to feed on. The men spend there whole time in hunting and robbing, and stay but a few days in a place, that is, while the grass lasts.

BARBE, a name usually given to a Barbary horse.

BARBE, in the military art, a term applied to the firing of cannon. To fire in barbe is to fire over the parapet, instead of firing through the embrasures. The parapet must not be above three feet and a half high, otherwise it will be impossible to fire in this manner.

BARBE, among our ancestors, the armour of a knight's horse.

BARBEL, *Barbus*, a river fish, so called from its having a barb or beard under its nose.

BARBERY, in botany; see **BARBERIS**.

BARBLES, or **BARBS**, in farriery, small excrescences under the tongue, and which may be discovered by drawing it aside, and cured by cutting them close off, and washing the part with brandy, or salt and water.

BARCALAO, a species of cod caught in several parts of the South-sea, particularly on the coast of the island of Juan Fernandes.

* **BARCELONA**, a city of Spain, and the capital of Catalonia. It is surrounded with a good brick-wall, round which is another, with fourteen bastions, horn-works, ramparts, and ditches; the ramparts are high, broad, and spacious, inasmuch that an hundred coaches may be seen every evening driving thereon for pleasure. It is the residence of a viceroy, is a bishop's see, has a fine university, a mint, a good port, and is adorned with

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handsome buildings. The remarkable buildings are the cathedral, which is large and handsome, and adorned with two high towers, the church of the Virgin Mary, the palace of the bishop, that of the inquisition, and several religious houses; add to these the palace of the viceroy; the arsenal, which contains arms for a thousand men; the exchange, where the merchants meet; the *terfana*, where they build the galleys; the palace where the nobility of the country meet, called *La Casa de la Deputation*. There are several fine squares, particularly that of St. Michael, into which all the great streets run. The port is wide, spacious, deep, and safe, defended on the one side by a great mole, and on the other sheltered from the west wind by two mountains, that advance into the sea, and form a kind of promontory; the mole is seven hundred and fifty paces long, with a quay, at the end of which is a light-house, and a small fort.

Barcelona is a place of great trade, on account of the conveniency of its harbour. The inhabitants are diligent, and equally fit for labour and trade; they are also very civil to strangers. The women are well shaped, and as handsome as any in Spain.

Barcelona is three hundred miles east from Madrid, one hundred and forty east of Saragossa, one hundred and eighty north-east of Valencia. Long. 25. E. Lat. 41. 26. N.

BARD, a poet among the ancient Gauls and Britons, who sung the praises of heroes, to recommend virtue, and compose the dissensions among mankind. They had their name from their office of chanting hymns, which were accompanied with musical instruments, and considered as the dictates of their gods; so that it is no wonder they were held in the highest esteem.

BARDANA Major, burdock or clotbur, in botany, a biennial plant, common by road sides, sufficiently known by its scaly heads or burs. These roots are recommended as mild diuretics, diaphoretics, and sweeteners, in scorbutic, rheumatic, gouty, and venereal disorders; and are supposed to be of similar or superior virtue to china-root and sarsaparilla, to which, in their sensible qualities, they have a considerable resemblance. They are used chiefly, and to the best advantage, in the form of a decoction; two ounces of the dried root are boiled in three pints of water, till one pint is wasted, and a

pint

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pint or more of the strained liquor taken warm every day. The expressed juice of the leaves has been sometimes given to the quantity of a quater of a pint or more, in the same intentions.

The seeds also have been given, in doses of a dram, as a diuretic, and as an aperient in disorders of the breast.

BARGAIN, in commerce, a contract or agreement in buying and selling. Bargain and sale in law, a contract made of manors, lands, and other things, transferring the property thereof for a consideration in money.

BARGE, a kind of boat of state, furnished with elegant apartments, canopies and cushions, equipped with a band of rowers, and adorned with flags and streamers: they are generally used for processions on the water, by noblemen, officers of state, or magistrates of great cities: of this sort we may reasonably suppose the famous galley of Cleopatra. There are likewise others of a smaller kind for admirals and captains of the royal navy, calculated to be easily hoisted into and out of the ships to which they belong. Barges are also flat-bottomed vessels of burthen for lading and discharging ships, and removing their cargoes in a harbour. See **LIGHTER**, **KEEL**.

BARGE-COUPLES, in architecture, a beam mortised into another, to strengthen the building.

BARILLA, a species of pot-ash, sometimes called soda, and prepared in Spain from a plant called kali. See **KALI**.

BARKING of Trees, in agriculture, the taking away part of the earth about the roots, that the rain and snow water, during the winter, may penetrate further into them. This operation is generally performed in the autumn.

BARK, *Cortex*, the exterior part of trees. The bark of the oak has been long used in tanning leather, and thought essential to that operation; but a different substance has been lately discovered, which answers the purpose full as well, and may be procured at a much cheaper rate; we mean oak saw-dust, or the chips of oak reduced to powder. This valuable secret was lately purchased by the society for the encouragement of arts, &c. See **TANNING**.

Jesuits **BARK**. See **QUINQUINA**.

BARK, in naval affairs, a general name given to small ships: also a ship of three masts, without any mizen-top mast: likewise a name to distinguish a vessel with a broad stern, without any figure on the prow or stern.

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BARKING of Trees, the peeling off the rind or bark.

It is necessary, in our climate, to perform this operation in the month of May; because, at that season only, the bark is, by the great quantity of sap, separated from the wood.

BARLEY, *Hordeum*, a gramineous, frumentaceous plant, whose seeds are covered with a husk growing in a spike, and the grains bearded.

Cultivation of BARLEY. Some persons sow barley upon land where wheat grew the former year; but, when this is practised, the ground should be ploughed the beginning of October, in a dry time, laying it in small ridges, that the frost may mellow it the better; and this will improve the land greatly: then, in March, the ground is ploughed again, and laid even, where it is not very wet; but in strong wet lands the ground should be laid round, and the furrows made deep to receive the wet. When this is finished, the seed should be sown with a broad cast, at two sowings; the first being harrowed in once, the second should be harrowed until the seed is buried. The common allowance of seed is four bushels to an acre.

Farmers in general sow too much grain of all sorts on their land; not considering that, if the roots of corn stand very close together, there will not be room for them to put out many stems; so that frequently there is not more than two or three stalks to a root; whereas, if the roots were farther distant, there might be ten, twelve, or more. We have counted upwards of seventy stalks of barley from one root, which was transplanted in a garden, where the ground was light but not rich: and are satisfied, by several experiments, that, where barley is sown early upon light ground, it should not be too thick; for, if it is rolled two or three times before it stalks, the roots, by being pressed, will shoot out a great number of stalks; and it will not be so liable to lodge with wet, as the barley which is sown thick; so must consequently be drawn up much taller, and have weaker stalks. When the barley is sown, the ground should be rolled after the first shower of rain, to break the clods, and lay the earth smooth, which will render it better to mow, and cause the earth to lie closer to the roots of the corn, which will be of great service to it in dry weather. Where barley is sown upon new broken up-land, it is usual to plough up the land in March and let it lie fallow until

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until June; at which time it is ploughed again, and sown with turnips, which are eaten by sheep in winter; by whose dung the land is greatly improved; and then in March following the ground is ploughed again, and sown with barley as before.

Many people sow clover with their barley; and some have sown the lucern with barley; but neither of these methods is to be commended; for, where there is a good crop of barley, the clover or lucern must be so weak as not to pay for standing. The time for cutting of barley is when the red colour of the ears is off, and the straw turns yellow, and the ears begin to hang down. In the north of England they reap their barley, and make it up in sheaves; by which method they do not lose near so much corn; and it is also more handy to stack: but this method cannot so well be practised where there are many weeds amongst the corn, which is too frequently the case in the rich lands near London; therefore, when this is the case, the barley must lie on the swarth till all the weeds are dead: but, as it is apt to sprout in wet weather, it must be shook up, and turned every fair day, after rain, to prevent it. When it is carried, it should be thoroughly dry; otherwise, if it be stacked wet, it will turn musty; or if too green, it is subject to burn in the mow. The common produce of barley is two and an half, or three quarters, on an acre; but sometimes there have been known four quarters on an acre.

BARLEY-CORN, the least long-measure known in England, equal to one third of an inch.

BARNICLE, or soland goose, in natural history, a species of goose with a black beak, which is much shorter than that of the common goose. It is common in the north of Scotland.

BARNICLE, a species of shell-fish, often found sticking to the bottoms of ships, rocks, &c.

BARNICLES, among farriers, an instrument composed of two branches. It is put up the nose of a horse, when he will not otherwise stand quiet to be shod, blooded, or dressed.

* **BARNSTAPLE**, a corporation and sea port-town, in Devonshire, with a market on Friday. It is governed by a mayor, a recorder, twelve aldermen, and twelve burgesses, and sends two members to parliament. It is a neat populous town, and is seated on the river Taw, between hills, in the form of a semi-circle. On the

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south side there is a handsome stone bridge, of seventeen arches, and on the north the ruins of a castle. It is thirty-nine miles north of Exeter, and an hundred and ninety-four west of London. The living is a discharged vicarage of forty-seven pounds a year. Long. 4.5.W. Lat. 51.15.N.

BAROCO, in logic, the fourth mode of the second figure of syllogisms.

A syllogism in baroco has the first proposition universal and affirmative: but the second and third, particular and negative; while the middle term is the predicate in the two first propositions.

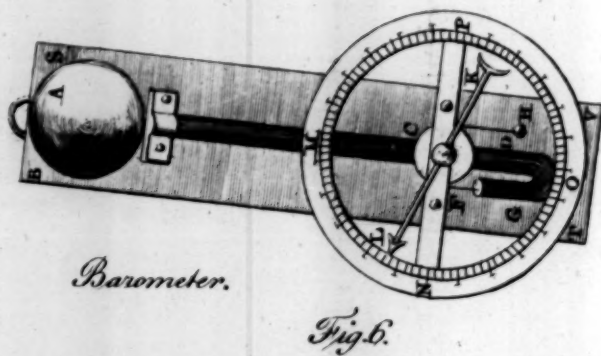
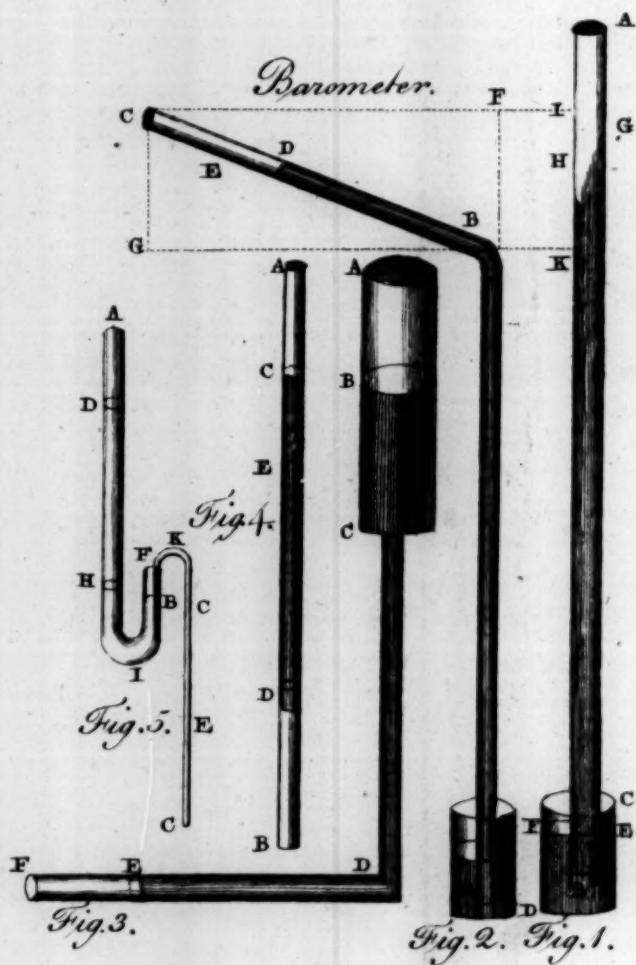
BAROMETER, an instrument to measure the weight of the atmosphere, and the variations that happen therein, in order to indicate the changes of the weather.

As the air is an heterogeneous fluid, it will vary in its weight as its component parts are different; and also according to its different altitudes. Few bodies are lighter than water, which is also very easily rarified into vapour. Hence it follows, that when the air is filled with aqueous particles it will be lightest, as we generally find it is in moist rainy weather; and also that it will be oftener in this than in a heavier state. Some instrument therefore is necessary to indicate these changes, and shew the weight of the air at all seasons; and may be made in the following manner:

A glass tube, hermetically sealed at one end, is to be filled with quicksilver, well defecated and purged of its air. The finger being then placed on the open end, in immediate contact with the mercury, so as not to admit the least particle of air, the tube is inverted and carefully immersed, with the finger on the open end, into a basin of the same prepared mercury; then, upon removing the finger, the mercury in the basin will join that in the tube; and the column of mercury in the latter will immediately subside to a certain pitch, or altitude, provided the tube be above thirty-one inches long.

Let A B (plate IX. *fig. 1.*) be such a tube, thirty-four inches in length, and a quarter of an inch in diameter, hermetically sealed at A, and open at B; let C D be the basin of mercury, into which the tube is immersed in an inverted position; E F, the surface of the mercury in the basin, add G H, that in the tube. Now it is very easy to conceive that if this whole apparatus were in vacuo, all the mercury in the tube would, as soon as inverted and the finger taken away, descend into the basin; because it must, as being a heavy body, descend towards the center of





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of the earth, till it meets with such an obstacle as the basin to obstruct its motion, and support it. But since the mercury does not totally subside when this is done in the open air, it follows that the column remaining in the tube must be suspended by the gravity of the air pressing on the surface of the mercury in the basin. And since the mercury in the basin is in equilibrium with that in the tube, it is plain, that the weight of the mercury in the tube, and the weight of the air upon every circular area of the surface of the mercury in the basin, equal to the orifice of the tube, must be equal: consequently the weight of the column of mercury, in the tube, is equal to the weight of a column of air of the same base, and whose altitude is equal to that of the atmosphere; consequently this column of mercury will always shew the gravity of the air, by its rise and fall in the tube, and indicate the various changes that happen in the atmosphere.

Since this suspended column of mercury exactly indicates the gravity of the air at all times, philosophers have watched its various stations with the greatest attention, in order to discover the two extremes of the air's gravity, by observing the least and greatest altitude of this mercurial column, which long experience has at last shewn to be nearly 28 and 31 inches; the mercury very rarely falling below the former, or rising above the latter: whence 29 inches and a half is fixed upon as the mean altitude, expressing the mean gravity of the air, and may therefore be represented by *BI*; let the greatest altitude be *BI*, and the least *BK*; then will *HI*, the distance between them, be what is called the scale of variation.

This scale or distance being three inches in the perpendicular tube; and it being known that fluids will always have the same altitude in a tube of any form or inclination; various artists have contrived various methods to increase the motion of the mercury, by making it move over a large space; and thus have invented several different sorts of barometers.

That which is next the upright one, is most esteemed, is called the diagonal barometer, and is represented in *fig. 2.* where *ABC* is a tube hermetically sealed at *C*, and immersed in a basin of mercury at *A*. This tube is perpendicular as from *A* to *B*, where the scale of variation begins; but is there bent into the form *BC*, making an acute angle *FBC*. This part *BC* extends to the highest limit in the scale

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of variation, viz. *IC*; and consequently while the mercury rises from *K* to *I*, in the common barometer, it will move in this form *B* to *C*, enlarging the scale of variation in the proportion of *BC* to *EB*; that is, of the diagonal to the least side of a parallelogram.

But this barometer is attended with one great inconvenience, which lessens its utility. Quicksilver being a very heavy body, and supported on the part *BC*, forming an inclined plane, it must have a very considerable degree of friction, which will be increased in proportion as the part *BC* is more oblique; and consequently the very small and nice variation of the air's pressure cannot be so accurately indicated in this, as in the common form. It also very often happens, from the inclination of the part *BC*, that the quicksilver divides into several parts, and thence frequently requires the trouble of re-filling the tube. This barometer was invented by Sir Samuel Moreland.

M. Cassini invented another kind of barometer, in order to enlarge the scale of variation; an invention which was afterwards completed by *M. John Bernoulli*. It consists of a tube *ACDF*, (*fig. 3.*) hermetically sealed at *A*, and bent to a right angle at *D*; whence it has acquired the name of the horizontal rectangular barometer. The mercury stands in both the legs from *E* to *B*; the scale of variation from *A* to *C* is made in a larger part; and it is evident, that in moving three inches from *A* to *C*, it will move through so many times three inches in the small leg *DF*, as the bore of *DF* is less than the bore of *AC*; whence the motion of the mercury at *E* must be extremely sensible. But the inconvenience here too is, that the mercury is very apt to break off in the leg *E*, and also to run out at the end *E*. Here is also a great degree of friction, and at the same time the attraction of cohesion will, from the smallness of the bore *DF*, impede the free motion of the mercury.

The pendant barometer is made in another form, consisting of a single tube suspended by a string fastened to the end *A* (*fig. 4.*) This tube is of a conical or tapering form, the end *A* being a little less than that at *B*. It is hermetically sealed at *A*, and filled with mercury; then will the mercury sink to its common station, and admit a length of altitude *CD*, the same with that in the common barometers. But from the conical bore of the tube, the mercury will descend as

K k the

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the air grows lighter, till it reaches its lowest altitude, when the mercury will stand from the lowest part of the tube B to E; so that BE will equal 28 inches: consequently the mercury will, in such a tube, move from A to E, or 32 inches if the tube be five feet, or 60 inches long; and therefore the scale AE is here above ten times greater than in the common barometer: but the fault of this barometer is, that the tube being of a very small bore, the attraction of cohesion will be very considerable, and prove an impediment to that freedom of motion, necessary to shew a very small variation in the air's weight.

The wheel barometer, so called from its structure, is easily understood from the figure, where ACDG (plate IX. fig. 6.) represents the quicksilver in a glass tube, having a large round head, or ball at top, and turnd up at the bottom F. Upon the surface of the mercury in the bent leg, there is placed an iron ball G with a string going over a pulley CD, and balanced by another weight H, suspended freely in the air. As the surface of the mercury at A is very large, and that at G very small, the motion of the quicksilver, and consequently of the ball G, will at the bottom be very considerable; but as the weight G moves up and down, it turns the pulley CD, and that a hand or index KL, pointing to the divisions of a large graduated circle MNOP; by which means the minutest variations of the air are plainly indicated, provided the instrument be so accurately made that the friction of the several parts be inconsiderable. This is the invention of Dr. Hooke.

Mr. Rowning invented a kind of compound barometer, consisting of mercury and water. ABC (plate IX. fig. 5.) is a compound tube hermetically sealed at A, and open at C, empty from A to D, filled with mercury from thence to B, and from thence to E with water. Let GBH be a horizontal line, then it is plain from the nature of the syphon, that all the compound fluid contained in the part from H to G, will be always in equilibrio with itself, be the weight of the air what it will, because the pressure at H and G must be equal: Whence it is evident, that the column of mercury DH, is in equilibrio with the column of water GE, and a column of air of the same base conjointly, and will therefore vary with the sum of the variations of each of these. The great property of this barometer is, that the scale of variation may be increased *ad in-*

B A R

finium. But not withstanding this property, it will afford the theorist more pleasure than the practical artist.

We have already hinted that the common barometer is the best instrument yet known for measuring the gravity of the air: but, in order to its doing this to the greatest perfection, the following particulars are necessary to be observed. 1. The tube must be at least one quarter of an inch in diameter; one third of an inch is a very proper size. 2. The tube ought to be new, clean, and dry within when filled; and in order to this it should be hermetically sealed at both ends, when made at the glass-house, one end of which may be cut off with a file, when you intend to use it. 3. The diameter of the cistern that holds the mercury, in which the open end of the tube is immersed, should be as large as conveniently may be, that the mercury therein may have nearly at all times the same degree of altitude, otherwise the index will not be true. 4. The mercury must be very pure, and free from any mixture of tin, lead, or other metal. 5. It ought to be purged entirely from air, as it may be by boiling, and filling the tube with it, while nearly boiling hot. 6. The tube must be heated before it is filled, to prevent its breaking with the boiling mercury. 7. It should be rubbed very hard, to excite the electric virtue, which will expel the particles of the air from the internal surface. 8. There ought to be a nonius, or vernier, applied to the index of the graduated plate, for measuring more accurately the rise and fall of the mercury.

As the principal use of the barometer is to estimate the gravity of the air at different times, in order to foresee the alterations of the weather, it will be proper here to add the following particulars relating to the rise and fall of the mercury, as they are the result of careful and repeated observations.

1. The rising of the mercury presages in general fair weather, and its falling the contrary.
2. In very hot weather, the falling of the mercury indicates thunder.
3. In winter the rising presages frost; but in a continual frost, it indicates snow.
4. When foul weather happens immediately after the falling of the mercury, little of it is to be expected; and so on the contrary of fair weather.
5. But when the mercury continues to rise for some time before the foul weather is over, a continuance of fair may be expected to follow.
6. In fair weather, when the mercury continues to fall

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fall before the rains come on, it prefigures a great deal of wet, and probably high winds. 7. The unsettled motion of the mercury denotes uncertain and changeable weather.

From these observations, it appears, that it is not so much the height of the mercury in the tube that indicates the weather, as the motion of it up and down; in order therefore to know whether the mercury be actually rising or falling, the following observations may be of use. 1. If the surface of the mercury be convex, it is a sign that the mercury is then rising. 2. If the surface be concave, that it is sinking. 3. If the surface be plain, or rather a little convex, the mercury is stationary. 4. If the tube be small, shake the tube, and if the air be growing heavier, the mercury will rise about half the tenth of an inch; if it be growing lighter, it will sink as much.

BARON, the next degree of nobility below a viscount and above a baronet.

BARONS of the Exchequer, the four judges to whom the administration of justice is committed, in matters relating to the revenues of the crown.

BARONS of the Cinque Ports, members of the house of commons sent by the Cinque ports.

BARON AND FEME, a term in law to signify the husband in relation to his wife, who is called feme. They are considered only as one person, so that a husband cannot be witness for or against his wife, nor the wife for or against her husband, except in cases of high treason.

BARON AND FEME, in heraldry, is when the coats of arms of a person and his wife are borne per pale in the same escutcheon, the man's being always on the dexter, and the woman's on the sinister side: but if the woman be an heiress, her coat must be borne by the husband on an escutcheon of pretence.

BARONET, a degree of honour, next to a baron, created by king James I. in order to settle a plantation in Ulster, for which purpose each was to maintain thirty soldiers in Ireland for three years after the rate of eight-pence sterling per day to each soldier.

This honour is hereditary, and they have the precedence of all knights, except those of the garter, bath bannerets, and privy counsellors.

BARONY, the honour and territory which gives title to a baron.

BARRACKS, or **BARACKS**, places erected for soldiers to lodge in, especially in garrisons.

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BARRATRY, in the marine acceptation, a defrauding the owners by the master of the ship.

BARREL, in commerce, a round vessel, in the form of a small tun, used for holding several sorts of merchandize.

BARREL, a liquid measure, and is of three kinds, wine, beer, and ale. The first contains thirty-one gallons and a half; the second thirty-six gallons; and the third thirty-two gallons.

BARREL, a certain weight of several merchandizes, which not only differs in different commodities, but also in different places. A barrel of Essex butter weighs one hundred and six pounds; and a barrel of Suffolk butter two hundred and fifty-six pounds. The barrel of herrings should contain thirty-two gallons wine-measure, and will hold about a thousand herrings. The barrel of salmon ought to contain thirty-two gallons. The barrel of vels the same. The barrel of soap must weigh two hundred and fifty-six pounds.

BARREL, in mechanics, by watch-makers the cylinder about which the spring is wrapped; and by gun-smiths to the cylindrical tube of a gun, pistol, &c. through which the ball is discharged.

BARREL, in anatomy, a cavity behind the tympanum of the ear, about four or five lines deep, and five or six wide. It is lined with a fine membrane, on which are several veins and arteries. See **EAR**.

Thundering BARRELS, in military affairs, a sort of casks, filled with bombs, grenades, and other destructive inventions, to be rolled down a breach.

BARRICADE, or **BARRICADO**, a military term, a fence formed in haste with vessels, baskets of earth, trees, palisades, &c. to preserve an army from the shot or assault of the enemy. The most usual materials for barricades consist of pales or stakes, crossed with battoons, and shod with iron at the feet; usually set up in passages or breaches.

BARRICADE, in naval architecture, a strong wooden rail, supported by stanchions, extending across the foremost part of the quarter deck. In a vessel of war, the vacant spaces between the stanchions are commonly filled with rope-matts, cork, or pieces of old cable; and the upper part, which contains a double rope-netting above the rail, is stuffed with full hammocks to intercept the motion, and prevent the execution of small-shot in time of battle.

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BARRIER, in fortification, a kind of fence made across a passage or the entrance of a retrenchment, composed of large stakes about four or five feet high, placed eight or ten feet distant from one another, with transoms, or over-thwart rafters, to stop either horse or foot. In the middle is a moveable bar of wood, that opens or shuts at pleasure.

BARRISTER, a person qualified and empowered to defend the cause of clients in the courts of justice. The word is formed from the Latin, *bar, bara*, the place where they stand to plead. Barristers are distinguished by the epithets outer and inner. The outer-barristers are those who plead without the bar. The inner-barristers are those who are allowed the privilege of pleading within the bar. But at the Rolls, and some other inferior courts, all barristers are admitted within the bar.

BARROW, in some salt works, a name given to wicker cases in the form of a sugar loaf, wherein the salt is put to drain.

* **BARROW (ISAAC)** an eminent mathematician and divine, was the son of Mr. Thomas Barrow, a linen-draper, in London, where he was born, in 1630. He was at first placed at the charter-house school, for two or three years, where his behaviour afforded but little hopes of success, in the profession of a scholar, he being fond of fighting, and promoting it among his school-fellows; but being removed from thence, his disposition took a happier turn; and having soon made a great progress in learning, he was admitted a pensioner of Peter house, in Cambridge. He now applied himself with great diligence to the study of all parts of literature, especially to that of natural philosophy. He afterwards turned his thoughts to the profession of physic, and made a considerable progress in anatomy, botany, and chemistry; after this he studied chronology, astronomy, and geometry. He then travelled into France and Italy, and in a voyage from Leghorn to Smyrna, gave a proof of his bravery; for the ship being attacked by an Algerine pirate, he staid upon deck, and with great intrepidity, fought till the pirate, perceiving the stout resistance the ship made, steered off and left her. It may not be improper to give here, another instance of his remarkable intrepidity and scrupulosity. He was once at a gentleman's house in the country, where the necessary was at the end of a long garden, and consequently at a great distance from the room where he lodged. As he was going to it before day, for he was a very early riser, a fierce male

B A R

tiff, who used to be chained up all day, and let loose at night for the security of the house, perceiving a strange person in the garden, at that unseasonable time, set upon him with great fury. The doctor caught him by the throat, threw him, and lay upon him, and whilst he kept him down, considered what he should do in that exigence; once he had a mind to kill him, but he altered this resolution, upon recollecting that this would be unjust, since the dog did only his duty, and he himself was in fault for rambling out of his room before it was light. At length he called out so loud, that he was heard by some of the house, who came presently out, and freed both the doctor and the dog from the danger they were both in. Dr. Barrow was for some time Greek professor in the university of Cambridge, and professor of geometry in Gresham college. He was afterwards master of Trinity college, and vice-chancellor of the university. The doctor's works were very numerous, and such as do honour to the English nation. He was unrivalled in mathematical learning, and especially in the sublime geometry, in which he has been excelled only by one man, and that man was his pupil, the great Sir Isaac Newton. This excellent person, who was a bright example of Christian virtue, as well as a prodigy of learning, died on the 4th of May, 1677, in the forty-seventh year of his age, and was interred in Westminster-abbey, where a monument, adorned with his bust, was soon after erected, by the contribution of his friends.

BARRY, in heraldry, is when an escutcheon is divided bar-ways, that is from side to side, into an even number of partitions, consisting of two or more tinctures, interchangeably disposed. It is to be expressed in the blazon by the word *barry*; and the number of pieces must be specified; but if the divisions be odd, the field must be first named, and the number of bars expressed.

BARRY-BENDY, is when the escutcheon is divided evenly, bar and bend-ways, by lines drawn transverse and diagonal, interchangeably varying the tinctures of which it consists. See plate XI. fig. 1.

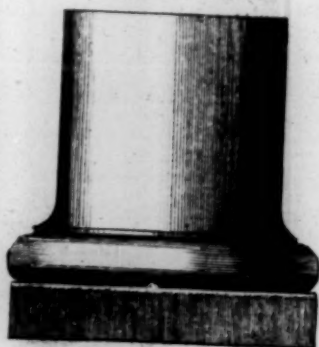
BARRY-PILY, is when a coat is divided by several lines drawn obliquely from side to side, where they form acute angles.

BARTERING, in commerce, exchanging one commodity or parcel of goods for another.

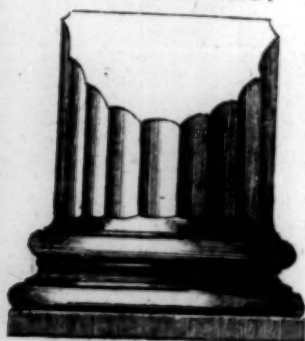
BARUCH,



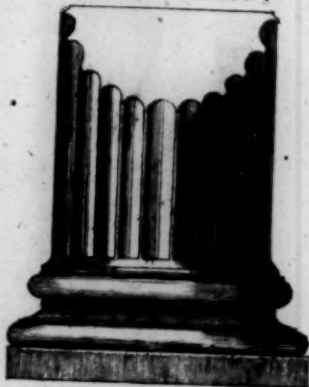
Tuscan Base.



Doric Base.



Ionic Base.



Corinthian Base.



Composite Base.



Attic Base.



10 20 30 40 50 60

Modulo

B A S

BARUCH, the name of an apocryphal book, subjoined to the canon of the Old Testament.

BASALTES, in natural history, a species of marble of a fine texture, and of a deep glossy black colour. The most remarkable quality of this marble is its figure, being never found in strata, like other marbles, but always standing up in form of regular angular columns, composed of a number of joints placed on and nicely fitted to each other, as if formed by the hand of a skilful workman. It is remarkably hard and heavy, will not strike fire with steel, and makes a fine touchstone. The Giants Causeway in Ireland is entirely composed of the basaltics; and is, perhaps, the most surprizing natural production of this kind in the world.

BASE, in geometry, the lowest side of the perimeter of a figure; thus any side of a triangle may be called its base; but the lowest, or that parallel to the horizon, is most properly the base.

BASE, in architecture, any particular body that bears upon another; but particularly for the lower part of a column and pedestal.

BASE of a Column, that part between the shaft and the pedestal; or, if there be no pedestal between the plinth and the zocle. The ornaments of the base, which are supposed to have represented originally the iron circles with which the trees and post that supported the ancient houses were bound, are different in the different orders.

The *Tuscan* **BASE**, consists only of a single torse, besides the plinth. See plate X.

The *Doric* **BASE** has an astragal more than the Tuscan, though that was indeed introduced by the moderns. See plate X.

The *Ionic* **BASE** has a large torse over two slender scotias, separated, according to Vitruvius, by two astragals. See plate X.

The *Corinthian* **BASE** has two torse, two scotias, and two astragals. See plate X.

The *Composite* **BASE** has an astragal less than the Corinthian. See plate X.

The *Attic* **BASE** has two torse and a scotia; and is a proper base for either the Ionic or Composite columns. See plate X.

BASE Rudemte, in architecture, that which has its torse cut like cables.

BASE, in fortification, the exterior side of a polygon, or an imaginary line drawn from the flanked angle of a bastion to the angle opposite to it.

BASE, in gunnery, the least sort of ordnance, the diameter of whose bore is one inch and a quarter, and its weight

B A S

200 pounds; the length of the bore is four feet; its shot a pound and a half in weight, and one inch and one eighth in diameter.

BASE Line, in perspective, the common section of a picture, and the geometrical plane.

BASE of the Heart, in anatomy, its upper part.

BASE Court, any court that is not of record.

BASEMENT, in architecture, implies a base continued a considerable length, as round a house, room, &c.

BASHAW, a Turkish governor of a province, city, or other district.

BASIL, in botany, the English name for a genus of plants called ocymum. See *Ocymum*.

BASIL, among joiners, the sloping edge of a chisel, or of the iron of a plane. They usually make the basil twelve degrees for soft wood, and eighteen for hard; it having been found by experience, that the more acute the basil is, the better it cuts; and the more obtuse it is, the stronger and fitter for service.

Order of St. BASIL, the most ancient of all the religious orders, and was very famous in the East during the latter part of the fourth century; though some doubt whether St. Basil was really the founder.

BASILIC, in ancient architecture, a large hall, or public room, with aisles, porticoes, galleries, tribunals, &c. being the term applied to those places where princes administer justice in person.

BASILICA, in anatomy, the interior branch of the axillary vein, running the whole length of the arms. See *VEIN*.

BASILICON, in pharmacy, two official ointments, distinguished by the epithets black and yellow; and formerly much used by surgeons in dressing wounds.

BASILICS, in antiquity, a body of the Roman laws, translated into Greek. In this system is comprehended the institutes, digests, codes, novels, and some edicts published by Justinian and other emperors.

BASILIDIANS, a sect of heretics in the second century, from their leader Basilides, a disciple of Menander. He flourished in Egypt about 112, and there chiefly propagated his heresy.

BASILISK, a fabulous kind of serpent, said to be produced from a cock's egg hatched by a serpent, and supposed to kill by its breath or sight.

BASILISK, in military affairs, a piece of ordnance, carrying a shot of forty-eight pounds, and weighing about seven thousand two hundred pounds.

* **BASING**.

B A S

• **BASINGSTOKE**, a town of Hampshire, is governed by a mayor, a recorder, seven aldermen, seven burgesses, &c. It is sixteen miles north-east from Winchester, and forty-eight south-west from London. Long. 9. 10. W. lat. 51. 20. N. It has a market on Wednesdays, and two fairs, held on Wednesday in Whitfun-week, for pedlary, and Oct. 10, for hiring servants and cattle.

BASIOGLOSSUS, in anatomy, a muscle arising from the base of the os hyoides, and running along the middle of the tongue towards its apex. It is assisted by the ceratoglossus, and draws the tongue backwards.

BASKETS of Earth, in the military art, signify small baskets filled with earth, and used in sieges on the parapet of a trench.

BASKET-SALT, a very fine salt, whiter, and composed of smaller grains than the common sort.

BASON, in mechanics, a term used by glass-grinders for a dish of copper, iron, &c. in which they grind convex-glasses, in the same manner as concave ones are ground on spheres. The hatters term the iron mould in which they form the matter of their hats, a bason; and they give the same name to the leaden one for the brims of hats; the latter has an aperture in the middle big enough for the largest block to go through.

BASON or FOUNTAIN, among gardeners, a reservoir for holding water either for the ornament or use of the garden. As to the depth of basons, they are usually from two to three feet; this depth being sufficient to secure the bottom of the basons from frost, and to dip watering-pots. But if they are to serve as reservoirs, or to keep fish in, then they may be made four or five feet deep, which will both hold water enough for the fish to breed in, and also to bear a boat. Deeper than this they should not be; for if they were deeper, they would be dangerous as to the drowning of persons who might chance to fall in.

Basons are now generally rejected by persons of good taste, as not ornamental; therefore, where there is a necessity to make reservoirs for water for the use of gardens, they are commonly dug in the lowest part of gardens, or where the spot is most convenient for receiving the water which may run from the adjacent grounds in hard rains. These ponds should have their sides made very easy; for if they are too upright, the earth frequently breaks down, by the water washing and making it hol-

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low below: the sides and bottom of these ponds should be laid nine or ten inches thick with well-wrought clay; and, as the clay is finished, it should be well covered, to prevent the sun and wind from cracking it before the water is let in. The figures of these ponds should not be regular; for the shape of the hollow, where they are made, should be followed, which will save expences, and have a better appearance.

BASS, in music, that part of a concert which consists of the gravest and deepest sounds, and is played on the largest pipes or strings of a common instrument, as of an organ, lute, &c. The bass is the principal part of a musical composition, and the foundation of harmony; for which reason it is a maxim among musicians, that when the bass is good, the harmony is seldom bad.

Counter BASS, the second or double bass, where there are several in the same concert.

Thorough BASS, or *Bassa Continuo*, the harmony made by the bass viols, theorbos, &c. continuing to play both while the voices sing, and the other instruments perform their parts, and also filling up the intervals when any of the other parts stop. It is played by figures marked over the notes on the organ, harpsichord, &c. and frequently simple and without figures, on the bass-viol and basson.

BASSOON, a musical wind instrument blown with a reed. It is furnished with eleven holes, and used as a bass in a concert of hautboys, flutes, &c.

BASSO-RELIEVO, or **BASS RELIEF**, a piece of sculpture, where the figures do not protuberate, or stand out far beyond the plane on which they are formed.

BASS-VIOL, a musical instrument resembling a violin, but much larger. It is struck with a bow, like a violin, has generally the same number of strings, and eight stops, which are subdivided into semi-stops. Its sound is grave, and has a very noble effect in a concert.

BASTARD, a natural child, or one born of an unmarried woman.

By the laws of England, a bastard is incapable of inheriting lands, as the heir of his father; nor can any one inherit lands heir to him, except the children of his own body; for by law, a bastard has no relation, and he himself is accounted the first of his family.

BASTARDY, a defect of birth, objected to one born out of wedlock, and is either general or special.

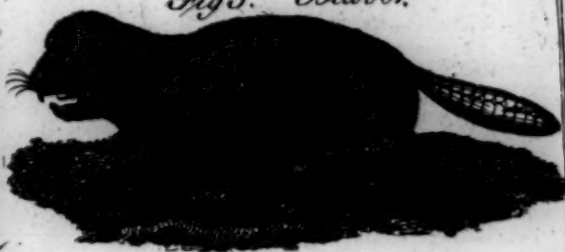
General

Barry Bendy.



Fig. 1.

Fig. 3. Beaver.



Bastion.

Fig. 2.

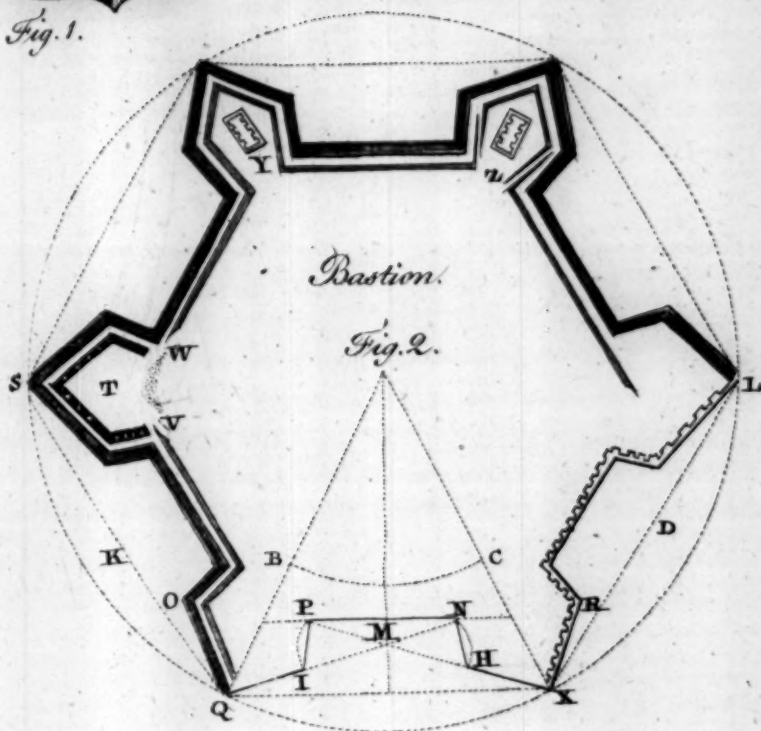


Fig. 4.



Fig. 6. Bee.



Fig. 5.



B A S T

General BASTARDY is a certificate from the bishop of the diocese to the king's justices, after enquiry made whether the party is a bastard or not, upon some question of inheritance.

Special BASTARDY is a suit commenced in the king's courts against a person that calls another a bastard.

BASTION, in fortification, a large mass of earth, usually faced with sods, sometimes with brick or stone, standing out from a rampart, of which it is a principal part.

A bastion consists of two faces and two flanks; the faces include the angle of the bastion, and their union forms the outmost, or salient angle, called also the angle of the bastion; and the union of the two faces to the two flanks, makes the side angles, called also the shoulders or epaules; and the union of two other ends of the flanks to the two curtains, makes the angles of the flanks.

Thus in fig. 2. plate XI. the lines H X, R X, O Q, Q I, are the faces of the two bastions X and Q; H N, I P, the flanks of the same bastions; and N P the curtain. The angles R X H, O Q I, are the salient angles, or angles of the bastions; the angles N H X, P I Q, are the side angles, shoulders, or epaules; and the angles H N P, I P N, the angles of the flanks. The lines A X, A Q, are called the capitals of the bastions X and Q. Z and Y are two powder magazines; T and W cavaliers.

The great rule in constructing a bastion is, that every part of it may be seen and defended from some other part: mere angles therefore are not sufficient; but flanks and faces are necessary. The faces must not be less than twenty-four Rhineland perches, nor more than thirty. The flanks of a bastion, provided they stand at the same angle under the line of defence, are so much the better the longer they are; they must therefore stand at right angles with the line of defence. At the same time the disposition of the flanks make the principal part of fortification, as on them the defence chiefly depends; and it is this that has introduced the various kinds of fortifying. The angle of the bastion must exceed 60 degrees, otherwise it will be too small to give room for guns, and will either render the line of defence too long, or the flanks too short. It must therefore be either a right angle, or some intermediate one between that and sixty degrees. See the article FORTIFICATION.

Solid BASTION, that which has the

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void space filled up entirely, and raised to an equal height with the rampart.

Void or Hollow BASTION, that which is only surrounded with a rampart and parapet, having the space within void or empty.

Flat BASTION, a bastion built in the middle of the curtain, when it is too long to be defended by the bastions at its extremities.

Cut BASTION, that whose point is cut off, instead of which it has a re-entering angle, or an angle inwards, with two points outwards; and is used, either when the angle would, without such a contrivance, be too acute, or when water, or some other impediment, prevents the bastion from being carried to its full extent.

Composed BASTION, when two sides of the interior polygon are very unequal, which also renders the gorges unequal.

Deformed BASTION, when the irregularity of the lines and angles causes the bastion to appear deformed or out of shape.

Demi BASTION is composed of one face only, has but one flank, and a demi-gorge.

Double BASTION, that which is raised on the plane of another bastion.

Regular BASTION, that which has its true proportion of faces, flanks and gorges.

BASTON, or BATOON, in architecture, a kind of moulding in the base of a column, called also a torus.

BASTON, or BATOON, in heraldry, a kind of bend only one half of the usual breadth. It resembles a truncheon, and is the proper mark for bastardy.

BAT, in natural history, a kind of mungrel, or amphibious sort of animal, partaking both of the mouse and bird, and flying though without feathers. The bat seems to be a medium between the quadruped and feathered kinds. They lay themselves up during the winter in the driest recesses of caverns; where, fixing their talons to the roof, they cover their bodies with their wings, and in that position sleep for several months.

* BATAVIA, an exceeding fine town in all the East-Indies, is situated in the island of Java, and is the capital of all the Dutch East India settlements. The streets are long and broad, all drawn by a line, with two rows of trees, always green, and which at all time afford a refreshing shade when the sun shines. Most of the streets are thirty feet broad,

and

and on both sides near the houses paved with bricks. There are eight principal streets, of which Princes-street is the chief. It begins at the point of the castle, and runs in a straight line to the town-house. This is on the eastern side of the river that runs through the town. The western bank of the river is planted with pleasant trees, and adorned with houses, all in a straight line, as far as the Diest-gate. There are fourteen streets with canals in the middle. Among the public buildings, the church called the Cross Church is the chief. It is built all of stone, and has a steeple in the middle, finely adorned with iron work; this church has a great deal of fine carving, and excellent workmanship, both within and without. The town-house stands very near the centre of the city, in a spacious square.

There are several structures which properly belong to the East India company, wherein the artificers are lodged, and their goods, stores, and rice laid up. They have particular markets for fish, rice, flesh, fowls, and fruit. The castle is of a quadrangular form, with two bastions that front the city. The west side of the river washes the walls of the castle, which is inclosed by part of the city, and lies open on that side. The two other bastions face the sea, and all the bastions, as well as the curtains, are faced with white stone, from the bottom to the top. The ditch is very broad and deep, and is inclosed with a quickset hedge. In this castle the governor of all their dominions in the Indies resides, and all the members of the council dwelling at Batavia; as also the head factors, and other necessary officers belonging to the company. The palace of the governor surpasses all the rest. Long. 105. 5. E. Lat. 6. 10. S. The land which surrounds the city is all well cultivated with rice, sugar-canes, gardens, orchards, country-houses, wharfs, and sugar mills, which are all of great consequence to this city. There are likewise four gun-powder mills, a corn-mill, a saw-mill, and a paper-mill. There are forts at certain distances from the city, to keep the barbarous inhabitants in awe, that the rest may manage their business with security. The inhabitants of Batavia are either citizens or servants of the company, and are of divers nations; but the Dutch exceed the rest, both in riches and dignity, and enjoy the places of honour and profit.

The government is the same as in the United Provinces, and consists of six pe-

culiar colleges, or councils. The first is composed of the members of the council of the Indies, in which all affairs of state are transacted, and the grievances of the people redressed. The second consisting of nine persons, besides the president, manage every thing relating to the revenue and treasury. The third is composed of aldermen or senators, chosen out of the principal inhabitants, who determine causes between the citizens. The fourth is made up of the overseers of the hospitals, and their business is to take care of poor orphans. The fifth council is to determine matters of less moment. They grant licenses for marriages; and will not permit a man to marry before twenty-one, nor a maid before eighteen, nor yet must a Christian marry with a Pagan or Mahomedan. The sixth is the council of war, where matters are determined relating to military affairs. But matters of consequence are referred to the senators.

The grounds about Batavia, and indeed all the island of Java, are extremely fertile; European plants grow stronger and larger than in their native soils, and seeds brought from distant parts produce herbs, plants, and fruit to great perfection; the vines, which flourish all the year round, are in great plenty, and yield excellent grapes, each bunch weighing about a pound.

Bamboos grow all over Batavia. They are stait canes or reeds, which seem to be cloven at the top. They grow in the water, and bear flowers like white lilies, which have a most agreeable smell.

BATCHELOR, or BACHELOR, a single man, who has never been married.

BATCHELORS, in the universities, persons who have attained to the *baccalaureate*, or taken the first degree in the liberal arts or sciences.

BAT-FOWLING, a method of catching birds in the night by lighting large candles, or torches, near the place where they are at roost; for, upon beating them up, they fly immediately to the flame, where they are easily caught in nets, or beat down with bushes fastened to the ends of poles.

BATH, *Balneum*, a sufficient quantity of water collected in some convenient receptacle for persons to wash themselves in, either for health or pleasure: and is either hot or cold.

Hot BATHS, called by the ancients *thermæ*, produce the most salutary effects in a great number of diseases; and owe their origin partly to an admixture of sulphurous

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phureous particles, while the water is passing through the subterraneous canals, and partly to the fumes or vapours exhaling through the pores of the earth, where sulphur is found either pure or impure, as in coals, amber, iron, nitre, &c. The principal hot baths in our country, are those at the city of Bath in Somersetshire; and those at Buxton and Matlock in Derbyshire.

Cold BATHS were held by the ancients in the greatest esteem; and the present age can boast of abundance of noble cures performed by them. Bathing will always be the part of a diuretic, and plunging over head in cold water, especially in that of the sea, will do more in the cure of melancholy, madness, and particularly that occasioned by the bite of a mad dog, than any medicine. There is nothing better adapted to the cure of frigidity, when owing to a former excess of venery, than the cold bath. It will also contribute its share to the cure of a simple gonorrhœa, and fluor albus. It is often successful in a palsy; and those who use it frequently are little affected with the changes of the weather.

Artificial BATHS are of various kinds, and adapted to various disorders; some are made of cephalic and nervous drugs boiled in light and pure water.

For preparing baths of this kind, we principally make use of bay leaves, baum, southernwood, marjoram, wild thyme, rosemary, hyssop, elary, dried mint, penny-royal, feverfew, and the flowers of camomile and rosemary; all which are put into a bag with the addition of a few handfuls of common salt, add a little potash, and gently boiled in water. In this medicinal water the patient is to be bathed in a bathing tub. It produces very happy effects in parylitic disorders, imbecility, and weakness of the joints; and proves very serviceable to weak, cachectic, and cold constitutions; especially in old patients, whose strength is impaired, their nerves weakened, and the tone of the ligaments of their joints in some measure destroyed.

Vapour BATHS are where the vapours arising from burning spirits of wine, or from herbs boiled in wine, water, milk, &c. have immediate access to either the whole body, or some particular parts. These warm exhalations are of very singular efficacy in promoting sweat, opening the subcutaneous ducts, softening the hardened parts, relaxing such as are tense and rigid, and dissolving viscous and te-

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nacious humours. Vapour baths are therefore of singular service in cold distempers, anasarca, œdematous tumours, and where the limbs are become paralytic. In that terrible species of tenesmus which generally accompanies a dysentery, the steams of milk in which elder-flowers have been boiled, afford instantaneous relief.

BATH, in antiquity, a measure used among the Jews, containing the tenth part of an omer, or seven gallons and four pints as a liquid measure; or three pecks and three pints as a dry measure.

BATHS, in architecture, superb buildings erected by the ancients for the sake of bathing.

Knights of the BATH, a military order instituted in England, according to some authors by Richard II. who confined their number to four; but according to others it was founded by Henry IV. in the year 1399, and their number limited to forty-six.

Their motto is *tres in uno*, alluding to the three theological virtues.

* *BATH*, a city in Somersetshire, seated on the river Avon. It has but one parish-church besides the cathedral or abbey; however, of late it has had many elegant buildings erected for the reception of persons of quality, who resort every season to drink or bathe in the waters; there is likewise a magnificent hospital, built by the contributions of the nobility and gentry, for the benefit of the poor, who come from all parts to be cured of various diseases. It is governed by a mayor, recorder, common council, &c. and has two markets, on Wednesday and Saturday; it has two fairs, held on February 3, and June 29, for cattle. There is a bridge over the Avon, which river, not many years since, was made navigable to Bristol. It is much enlarged since the walls were built, which are said to be very ancient; there are four gates, namely, the north, west, and south, the fourth leads only to the river; of these the west-gate is best, being a handsome stone building; without the walls there is a handsome square, with a fine chapel, and an obelisk in the centre seventy feet high. The stone of which the houses are built is mostly dug out of quarries on Carlton-Down, and is conveyed down a steep hill by a curious contrivance of the late Mr. Allen. Over the market-house is the town-hall, which is a large stone building, supported by twenty-one stone pillars. In 1740, they began to build another new square in the gardens adjoining to the public

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public walks on the south side of the city, near the Avon, which is now the chief ornament of the city.

The two seasons for drinking Bath waters are the spring and fall; the spring begins with April and ends with June; the fall with September, and ends at December: the spring season is the best for health, and the fall for pleasure. The common charge for bathing is two shillings each time; that is, a shilling for the chair, six-pence for linen, and six-pence to the guide. The hot springs of this city exhale a kind of a mist, which is not of a very agreeable smell, on account of the sulphureous particles wherewith they abound. That called the Cross Bath is of a gentle moderate warmth, for which reason a person may stay much longer in it than in the rest. It is inclosed with a wall, on the sides of which are seats, at the end galleries for music, and the spectators, under which are slips, or ranges of small dressing-rooms, one of which ranges are for the gentlemen, and the other for the ladies, who being dressed in linen habits, go both together into the water, the men keeping on one side, and the women on the other. This bath fills in sixteen hours. The Hot Bath, so called from its being hotter than the Cross Bath, is fifty-eight feet and a half distant from the former. This bath has a well, which not only supplies its own pump with water, but that of the Cross Bath, by means of pipes.

The King's Bath, which is much larger, is supplied with a great many slips or dressing-places. The Queen's Bath has no spring of its own, but is supplied by water from the King's Bath. There is also a bath for those that are supposed to have the leprosy, or a similar cutaneous disease. This is made by the overflowing of the Cross-Bath, and the poor that bathe in it are maintained by the contribution of the wealthy, who come to use the waters.

The Bath water certainly acts like a saponaceous fluid, mixt with sulphureous particles, which penetrate through the pores of the skin, and tend to dissolve the viscid cohesions of the blood and humours; besides, it softens the rigid fibres, relaxes the coats of the vessels, and renders them more soft and yielding, to which the heat of the water does not a little contribute; for this, by rarifying the humours, distends the minutest vessels, and renders the circulation easy and free: therefore we can hardly meet with a

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more powerful deobstruent, or a more ready way to cure many chronic diseases.

Pumping the Bath water on the parts affected has been found to be of singular use in many cases, such as pains in the head, deafness, the hip-gout, palsy of a limb, and local decays of the muscular parts. At first pumping was used in the bath, but this was found inconvenient, because bathing does not agree with all disorders. Pumping is particularly serviceable in old pains and aches, when the pores of the skin are shut up, and when cold phlegmatic humours are fixed on any part, as also in sprains and relaxations of the membranous and tendinous parts. Bath water, taken inwardly, strengthens the stomach, invigorates the blood, helps digestion, and consequently bestows fresh vigour on the vitals. Bath is 108 Miles west of London.

BATON, or BASTON. See **BASTON**.

BATTALIA, an army drawn up in order of battle.

BATTALION, a small body of infantry drawn up in order of battle, ready to engage. A battalion usually contains from five to eight hundred men; but the number is not precisely determined. They are divided into three companies, one of which is grenadiers. They are usually drawn up with six men in file, or one before another. Some regiments consist of one battalion only, while others are divided into four or five.

* **BATTEL**, a town in Suffex, fifty-seven miles east-by-south from London, with a market on Thursdays. It has two fairs, the one on Whit-Monday, and the other on November 22, for cattle and pedlars wares. It was formerly called Epiton, and is the place where William the Conqueror vanquished king Harold, on October 14, 1066. William, in memory of this victory, erected an abbey, called it Battle Abbey; and if a criminal could but reach this abbey, he was dismissed from thence, and was afterwards in no danger of punishment for his past faults. The abbey was a large and noble structure, as may be judged by the gateway, which is still entire, as well as from the other remains. Soon after its dissolution the lord viscount Montacute built a stately pile on the south side, which is now become ruinous. This abbey was honoured with the mitre, and was valued at 881 l. according to Dugdale, but by Speed at 987 l. Long. o. 35. E. Lat. 50. 55. N.

BAT-

B A T

BATTERING, in the military art, the attacking a place, &c. with heavy artillery.

BATTERING-PIECES, large pieces of ordnance, proper for battering a fortification. See **CANNON**.

BATTERING-RAM, a machine used by the ancients in sieges, for battering the walls and towers of a fortified place. The use of this machine is very ancient, and the invention of it ascribed to different people. It was of two kinds, *slung* or *unslung*. The former was composed of a large beam of oak, resembling a ship's mast, of prodigious length and thickness, having the head armed with a head of iron proportioned to the body, and resembling that of a ram, and thence it had its name. This terrible machine, which according to Vitruvius weighed 440000 pounds, was suspended, and equally balanced, like the beam of a pair of scales, with a chain, or a large cable, which supported it in the air in a strong frame of timber, which was pushed forwards, on the filling up of the ditch, to a certain distance from the wall, by means of rollers or wheels. The frame was secured from being set on fire by the besieged, by several coverings, with which it was then cased over. The unsuspended ram differed from the other only in the manner of working it: for, instead of being slung by a chain or cable, it moved on small wheels on another large beam.

BATTERING-RAM, in heraldry, a bearing, or coat of arms, resembling the military engine of the same name.

BATTERY, in the military art, a parapet thrown up, or formed of fascines, &c. for covering the gunners, &c. from the shot of the enemy. All field batteries consist of four chief parts, namely, the ditch, the parapet, the platform, and the magazine. The ditch is usually dug in the front and sides, and sometimes quite round; and serves not only to furnish the earth necessary for the parapet, but it also prevents the enemy from entering the battery so readily as he might otherwise do. The ditch in front is commonly eighteen or twenty feet broad, and the depth about seven or eight feet; the sides sloping towards the bottom, which is about six feet wide: but the ditches on the sides are about ten feet wide, and six feet deep. These are the dimensions usually given; but the general practice seems to be, only to get earth sufficient for the work, and not mind the regularity of the ditch: for as these works in attacks are usually done by night, the keeping strict-

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ly to the assigned dimensions is hardly practicable. The parapet is generally raised about three or four feet distant from the brink of the ditch, the space left between, called the *berm* or *foreland*, serving to lodge the rubbish beat down by the enemies shot, that it may not fall into the ditch. The thickness of the parapet should be about eighteen or twenty feet, in order to be cannon-proof, and about seven or eight feet high, when the enemy has no command above the battery: but if they have a command over this height, the parapet should be raised high enough to cover the men when they load the guns. The length of the parapet depends on the number of guns to be employed in the battery. Thus, for one gun allow eight yards in length; and six yards more for every other gun: so two guns have fourteen yards, three guns twenty yards, four guns twenty-six yards, &c.

Great care should be taken that the battery be not enfiladed or raked by the enemies cannon.

The parapet consists of two parts, namely, the wall and the merlons. The wall is that part of the parapet which is contained in one piece from end to end, and is about two and a half or three feet high. The merlons are detached pieces of the parapet, leaving openings called *embrasures*, through which the cannon deliver their shot. The embrasures should as much as is possible, be cut perpendicular to the parapet; therefore the battery should be parallel, or nearly so, to the object to be battered: for direct shots have most force: and oblique embrasures weaken the merlons, or parts of the parapet standing between the embrasures.

The magazine to a field battery is usually made about fifty or sixty yards behind the platform: it is a cavity dug in the ground, about four feet deep; the earth whereof is thrown between the pit and the platform; the sides of the pit are sometimes planked round to keep it dry, and prevent the earth from crumbling in; and the powder barrels placed herein are covered with hurdles and earth, or tanned hides, to preserve the powder from wet and fire. The communication to the magazine is by a sloping trench beginning to descend about five or six yards behind the platform; and the earth thrown on that side where it will most conveniently cover the persons who remove the barrels of powder from the great magazine to the battery or small magazine.

B A T

A Coffer BATTERY is that where the sides of the wall and merlons only are formed of fascines, and all the cavities or included spaces filled with earth.

To make a Gabion BATTERY.—Along the line pitched out for the battery, let the gabions be planted in the places where the merlons are to be: the gabions used are of five, six, and seven feet in diameter, and eight feet high. Each merlon must have seven; that is, three within of six feet diameter, next two of seven feet diameter, and, on the outside, two of five feet diameter; observing to leave proper openings for the embrasures, of about two feet on the inside, and nine or ten on the outside.

Batteries of this construction are usually made on marshy or rocky ground.

BATTERY d'Enfilade, that which scours or sweeps the whole length of a straight line.

BATTERY en Echarpe, one that plays obliquely.

BATTERY de Reverse, that which plays on the back of the enemy.

BATTERY à Ricochet, are when the cannon are not loaded with their full charge of powder, so that the balls may strike the ground before they reach the place, and by rising again leap over the wall, and do execution among the besieged.

Cross BATTERIES, two batteries which play athwart one another, upon the same object, forming an angle, and beating with more violence and destruction; because what one bullet shakes the other beats down.

Comerade BATTERY, when several guns play at the same time upon one place.

Sunk or Buried BATTERY, when the platform on which the guns are placed is sunk into the earth, so that there must be trenches or embrasures cut in the earth, against the muzzles of the guns, for passages to the shot.

BATTERY of Mortars, differs from a battery of cannon, in being sunk into the earth, and having no embrasures.

BATTERY, in law, the striking, beating, or offering any violence to another person: but if the plaintiff made the first assault, the defendant shall be acquitted, and the plaintiff amerced to the king for his false suit. Battery is frequently confounded with assault, though in law they are different offences; and the defendant may be found guilty of assault, though acquitted of the battery: there may therefore be an assault without

B A V

a battery; but battery always implies a assault.

BATTLE, a general engagement between two armies.

BATTLE-ROYAL, among sportsmen, a fight between three, five, or seven cocks, all engaged together, so that the cock which stands longest wins the battle.

BATTLE-AX, a kind of halbert formerly used by the infantry, and first introduced into England by the Danes.

BATTEMENTS, in architecture, indentures or notches in the top of a wall, or other building, in the form of embrasures.

* *BATTUS*, in fabulous history, an herdsman, who observing Mercury steal a drove of cattle from Apollo, to conceal the theft Mercury gave him a milk-white heifer; but soon after, assuming the speech and habit of a peasant, asked if he had seen his stray bullocks and heifers pass that way, and promised, that if he would assist him in finding them, he should have a bullock and heifer for his pains. Upon this the clown hastily told him where they were, when Mercury, to revenge his perfidy, turned him into a touch-stone.

* *BAVARIA*, a duchy and electorate in Germany. It is the most considerable part of the Circle of Bavaria, and is bounded on the north by the palatinate of Bavaria, Bohemia, and the duchy of Neuburg, on the west by Scabia, on the south by Tyrol, and on the east by the archbishoprick of Salzburg, the bishopric of Passaw, and Austria. This electorate is about one hundred and twenty miles from east to west, and one hundred and five from north to south. It is watered by a great number of rivers, whereof the principal are the Inn, the Iser, and the Lech. It contains thirty-five cities, ninety-four market towns, eight bishopricks, seventy-five convents, eleven thousand and seventy-four villages, and twenty-eight thousand seven hundred and nine churches. The air is healthy and temperate; the soil produces a little wine, some corn, and good pastures. There are likewise some mines. It was raised to the dignity of an electorate in 1623. This electorate is divided into two general parts, High Bavaria, on the west, which comprehends the governments of Munich and Ingolstadt: Lower Bavaria, on the east, which contains the governments of Straubing, Landshut, and Burckausen. The Upper Palatinate, or the Palatinate of Bavaria, is bounded on the north by Franconia and Bohemia; the first bounds

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it likewise on the west, and the latter on the east; on the south it is terminated by the duchies of Neuburg, Bavaria, and the bishopric of Passau. It is about eighty miles long, and eighty miles broad. It is well peopled, and the soil is fertile, but it has little trade. The principal places are Amberg, the capital, and Hochstett, famous for the duke of Marlborough's victory over the French, in 1704.

* **BAUGE**, (battle of) where the duke of Clarence was killed, April 3, 1412. The duke of Clarence had marched with ten thousand men into Anjou, with a view to reduce that province, which adhered to the dauphin; being informed that seven thousand Scots, commanded by the earl of Buchan, were encamped at Bauge, in such a straggling manner, that the van might be easily cut off before the rear could come to its assistance, he resolved to attack them immediately; and putting himself at the head of his horse, began his march, after having ordered the earl of Salisbury to follow with the rest of the forces. When the duke reached Bauge, he found some Scottish troops intrenched in a church-yard, and spent so much time in attempting to dislodge them, that the earl of Buchan being alarmed, assembled his forces, and marched up to their assistance. Clarence, instead of waiting for the earl of Salisbury, attacked the new-comers with great impetuosity, and performed many exploits of personal valour, until he was wounded in the face with a spear, by a Scottish knight, called Swinton, and afterwards killed with a truncheon by the earl of Buchan. His cavalry were totally routed, fifteen hundred left dead upon the spot, among which were the lord Raos, sir John Grey, and sir Gilbert Umfreville, and the earls of Huntingdon, Somerset, and Montague, the lord Fitzwalter, and many other persons of distinction, were taken prisoners. The earl of Salisbury did not come up till after the battle; but he favoured the retreat of the fugitives, and recovered the body of the duke of Clarence, whose death was justly regretted by all his countrymen. The dauphin was so well pleased with this victory, that he created the earl of Buchan constable of France; and that nobleman, in order to maintain the reputation he had acquired, undertook the siege of Alencon, which the earl of Salisbury attempted to raise; but he was repulsed with some loss by the besiegers, though Buchan was afterwards obliged to abandon the enterprize for want of artillery. Nevertheless the dauphin's party began to recover their spi-

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rits, and gained several advantages over the Burgundians. Lahire, one of the dauphin's partisans, defeated a body of troops under the count de Vaudemont, who was taken prisoner; and the war was carried on with great vivacity in Ponthieu, where the Burgundians were worsted in several encounters.

BAVINS, in the military art, are faggots of brush wood, with the brush at length.

BAUM, *Melisa*, in botany, a plant which is perennial; a native of mountainous places in the southern parts of Europe and flowers in our gardens in June. This plant, formerly celebrated for cephalic, cordial, stomachic, uterine, and other virtues, is now justly ranked among the milder corroborants.

The infusions of it are sometimes drank as tea in chronical disorders proceeding from debility and relaxation, and sometimes, acidulated with lemon juice, as a diluent in acute disorders.

* **BAXTER (RICHARD)** an eminent nonconformist divine, was born at Rowton, in Shropshire, November 12, 1615, and distinguished himself by his exemplary life, his moderate principles, and his numerous writings. He had a congregation at Kidderminster, and after the restoration became one of the king's chaplains in ordinary; preached before him once, had frequent access to his royal person, and was offered the bishopric of Hereford, by the lord chancellor Clarendon, which he refused to accept: after this he was several times arrested, fined, and thrown in prison, for presuming to preach to a body of dissenters, though he was honoured with the friendship of some of the greatest and best men in the kingdom, as the duke of Lauderdale, the earl of Balcarras, lord chief justice Hales, Dr. Tillotson, &c.

BAY, a gulph or inlet of the sea-coast, comprehended between two capes or points of land, where vessels frequently ride at anchor sheltered from the wind.

BAY, among farmers, that part of a barn where the corn is laid up, or the mow made.

BAY, one of the colours of the coat of horses, and has, perhaps, its name from resembling the colour of dried bay-leaves. There are various degrees of this colour from the lightest bay to the dark, that approaches the nearest to the brown, but always more gay and shining. The bay is one of the best colours, and horses of all the different kinds of bays are commonly good, unless when accidents happen to spoil

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spoil them when they are colts. *Gibson on Horses.*

BAY, among huntsmen, is a term applied to a deer, which after being hard run, turns about, and defends himself with his horns against the dogs; in which case he is said to stand at bay.

BAY-SALT. See **SALT**.

BAYONET, in the military art, implies a short broad dagger, with a hollow handle of iron, of a circular form, fitted to the muzzle of the piece where it may occasionally be fastened; so that the soldier fires with the bayonet on the muzzle of his piece, and is always ready to act against the horse.

BAYS, in commerce, a sort of open woollen stuff, having a long knap, sometimes frized, and sometimes not. It is without any wale, and wrought in a loom with two treddles like flannel.

Bays are chiefly manufactured at Colchester and Bocking in Essex. It is exported in great quantities to Spain and Portugal, and even to Italy. Their chief use is for cloathing the monks and nuns, and for lining the soldiers cloaths. The breadth of bays is commonly from a yard and a half to two yards, and the length from forty-two to forty-eight.

BAZAT, in commerce, a long, fine cotton, brought from Jerusalem, and is thence often called Jerusalem cotton.

BDELLIUM, in the materia medica, a gummy resinous juice, flowing from an oriental tree of which we have no description. This gummy resin is recommended as a corroborant and attenuant in disorders of the breast, for promoting urine and the menses, and externally for resolving or maturing hard tumours; but is at present little used.

BEACON, a signal erected on some eminence, for giving notice of the invasion of an enemy. It consists of pitch-barrels placed upon high poles, and when the enemy appears, the barrels are set on fire: so that the flame in the night time, and the smoke in the day, spreads the alarm through the whole country.

BEACON is also a mark erected as a warning to seamen against rocks, shelves, or sands.

BEACONAGE, the tax paid for maintaining a beacon.

BEAD, in architecture, a round moulding, commonly made upon the edge of a piece of stuff, in the Corinthian and Composite orders, cut or carved in short gem-bossments, like beads in necklaces.

BEAD-PROOF, among distillers, con-

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sists in shaking a small quantity of the spirits in a phial, when if the crown of bubbles stand for some time on the surface, the goods are esteemed proof, that is, equal parts of rectified spirits and phlegm.

BEAGLE, a particular kind of hunting-dog, of which there are several sorts.

BEAK, the bill or nib of a bird, from the form and structure of which Linnaeus divides the whole class into six orders. See **BIRD**.

BEAK, in architecture, the small fillet left on the head of a larmier, which forms a canal, and makes a kind of pendant.

Coin **BEAK**, a moulding the same with the quarter-round, except its situation, which is inverted.

BEAK-HEAD, in naval architecture, the name given to a ship's head, whose fore-castle is square; a circumstance common to all vessels of war that have two or more decks of guns.

BEAM, in architecture, the largest piece of wood in a building, being laid across the walls, and serving to support the principal rafters of the roof. No house has more than two of these beams, viz. one at each head: into these the girders of the garret floor are also framed, and if the building be of timber, the teazle-tenons of the posts.

The proportion of beams near London are fixed by statute, as follows: a beam 15 feet long must be 7 inches on one side its square, and 5 on the other: if it be 16 feet long, one side must be 8 inches, the other 6; if 17 feet long, one side must be 10 inches, the other six: in the country they usually make them stronger. Sir H. Wotton advises these to be of the strongest and most durable timber.

Some of the best authors among the French have considered the force of strength of beams, and brought their resistance to a precise calculation, particularly M. Varrignon and M. Parent. The latter has shewn us, that if a beam, in form of a parallelepipedon, be fixed horizontally in a wall, its resistance against breaking at the place of its insertion will be as the area of the section at the wall and the depth of the beam directly, and the length reciprocally.

M. Parent has calculated tables of the weights that will be sustained by the middle, in beams of various bases and lengths, fitted at each end into walls, on a supposition that a piece of oak of an inch square, and a foot long, retained horizontally by the extremes, will sustain 315 lb. in its middle, before it breaks, which it is found,

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by experience, it will. See *Mem. Acad. R. Scienc. an. 1708*.

BEAMS, in naval architecture, thick strong pieces of timber, stretching across the ship from side to side, to support the decks and retain the sides at their proper distance.

On the **BEAM**, in navigation, any distant object is so called, when it bears on a line with the ship's beams: thus, if a ship lies north and south, any object on the beam must bear east or west; and hence,

Before the **BEAM** is an arch of the horizon included between a line, crossing the ship at right angles, and the object seen in that situation: thus, if a ship steers north, and discovers another two points before the starboard beam, the bears E. N. E. and so of abast the beam.

BEAM, among hunters, the main stem of a deer's head, or that which bears the antlers, royals, and tops.

BEAM, in mechanics, the lath, or iron, of a pair of scales.

BEAM is also the name of a fiery meteor, in the form of a pillar.

BEAM, or **ROLLER**, among weavers, a long and thick wooden cylinder, placed lengthwise on the back part of the loom of those who work with the shuttle. The threads of the warp are rolled upon the beam, and unroll as the work proceeds.

BEAM-COMPASS, an instrument consisting of a square wooden or cross-beam, having sliding sockets that carry steel or pencil points; and used in describing large circles, where the common compasses are useless.

BEAM of an Anchor, the shank, or longest part of an anchor. See **ANCHOR**.

BEAM of a Plough, a name given to the largest piece of timber in a plough, and to which all the parts of the plough-tail are fixed. This beam is generally made of ash, is straight, and eight feet long in the common plough; but in the four coultered plough, it is ten feet long, and arched at the upper part. The head of this beam lies on the pillow of the plough, and is raised higher, or sunk lower, as that pillow is elevated or depressed by sliding along the crow-staves. Near the middle it has an iron collar, which receives the tow chain from the box; and the bridle chain from the stake or gallows of the plough, is fixed to it a little below the collar; some inches below this there is a hole, in which the coulter is fastened; and below that are two other small holes, through which the heads of the retches or irons that support both the sheat and the share press. Far-

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ther back still is large perforation, through which the body of the sheat passes; and behind that, very near the extremity, is another hole, through which the piece called the hinder sheat passes. See **PLOUGH**.

BEAN, *Faba*, in botany, the name of a genus of plants, whose peevil becomes a pod, containing large flattened, and in some degree, kidney-shaped seeds.

Mr. Tournefort has enumerated eight species of this plant, but we have only the four following sorts, commonly sowed in our gardens. 1. The small Lisbon. 2. The Spanish. 3. The Sandwich. And, 4. The Windsor. The first and second sorts are to be planted in October and November, under warm walls and hedges, where, if they stand through the winter, they produce beans early in the spring. They may also be raised very close in beds, and covered with hoops and mats in the winter; and in the spring planted out; but there is some hazard in the transplanting, and they will be a fortnight, or more, later than those which have stood the winter abroad. The Lisbon bean is preferred to the Spanish: and the curious ought to have fresh seed every two years from abroad, for they are apt to degenerate, though not in goodness, yet in their earliness. The Spanish and Windsor beans are not to be planted till Christmas, but especially the Windsor, which are subject, more than any other kind, to be hurt by the cold. These beans should have an open ground, and be planted at the distance of two feet and a half, row from row, and four inches from one another in the rows; but if the place is closely surrounded with hedges and walls, the distance must be greater, else the stalks will run high, but they will bear very little fruit. The Sandwich beans are hardier than the Windsor, and may be planted to come in between the early crops and them; and, though not much regarded at present, they are a very good bean. The first plantation of Windsor beans should be made in the middle of January; and, after that, a new plantation should be made every three weeks, till the middle of May, that there may be a succession of crops. *Miller's Gardeners Dict.*

BEAN-TREFOIL, in botany, a genus of plants whose fruit is an oblong pod, containing kidney-like seeds.

BEAR, *Ursa*, in zoology, a genus of quadrupeds, of the order of the *feræ*, or beasts of prey; distinguished by having only four teats, two on the breast, and two

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on the belly. It is a large but unsightly animal, and of different sizes in different countries.

BEARD of a *Comet*, in astronomy, the rays which the comet emits towards that part of the heavens whither it seems to direct its motion; and it is this that distinguishes the beard from the tail, which implies those rays that are emitted in the tract through which it has passed.

BEARDING of *Wool*. See **WOOL**.

BEARER, in architecture, a post, pier, or wall, erected between the two ends of a piece of timber, to shorten its bearing, or to prevent its whole weight resting on the two ends only.

BEARER of a *Bill of Exchange*, one in whose hands the bill is, or in favour of whom the last order was made.

BEARING, in navigation, an arch of the horizon, comprehended between the nearest meridian and any distant object, either discovered by the eye, or found by the sinical proportion; as, at four P. M. we discovered Cape Malacha, bearing W. 64°. S. or, having the difference of latitude and longitude given, we find the bearing and distance by analogy.

BEAR-UP, or **BEAR-AWAY**, in navigation, a ship is said to do so when, having sailed some time with a side-wind, she alters her course and sails more before it: this is probably called bearing-up, because the helm is borne up to the wind-side of the ship; for, otherwise, it is not only absurd, but an absolute contradiction, to say a ship bears-up when she goes before the wind.

BEAST, a general appellation for all four-footed animals.

BEASTS of *Burden*, all four-footed animals used in carrying burdens. These are chiefly elephants, camels, dromedaries, horses, mules, asses, and the sheep of Mexico and Peru.

BEASTS of *Chace*, the buck, the doe, the fox, the roe, and the martin.

BEASTS and **FOWLS** of the *Warren*, the hare, the coney, the pheasant, and the partridge.

BEASTS of the *Forest*, the hart, the hind, the boar, and the wolf.

BEATIFICATION, an act whereby the pope declares a person beatified or blessed. It is the first step towards canonization. See **CANONIZATION**.

BEATING *Flax* and *Hemp*. See **FLAX** and **HEMP**.

BEATING *Gold* and *Silver*. See **GOLD**-**BEATING**, &c.

BEATING, in navigation, the act of making a progress against the wind, by

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tacking. See **TACKING**. Beating, however, is generally understood to be turning to windward in a storm or fresh wind.

BEAVER, *Fiber*, in natural history, a creature about four feet in length, and twelve or fifteen inches broad. His skin, in the northern regions, is generally black, but it brightens into a reddish tincture in the temperate climates. He is covered with two sorts of hair, one long, and the other a soft down; the latter, which is an inch in length, is extremely fine and compact, and accommodates the animal with a necessary warmth. The long hair preserves the down from dirt and humidity. The beaver, whether male or female, has four bags under his intestines, impregnated with a resinous and liquid substance, which, when it is ejected, settles into a thick consistence. See **CASTOR**.

His teeth are strong, and deeply riveted into his jaws, with a long and crooked root; with these he cuts as well the wood with which he builds, as that which furnishes him with food. His fore-feet resemble those of such animals as hold what they eat with their paws, as apes, for instance, and rats, and squirrels; with these feet he digs, softens, and works the clay, which is extremely serviceable to him. His hind feet are accommodated with membranes, or large skins, extending between his toes, like those of ducks, and all other water-fowl; this makes it evident that the Author of nature intended the creature should be amphibious. His tail is long, a little flat, entirely covered with scales, supplied with muscles, and perpetually lubricated with oil or fat. This animal, who is an architect from his nativity, uses his tail instead of a hod, for the conveyance of his clay or mortar, and a trowel to spread and form it into an incrustation; the scales prevent these materials from penetrating the tail with their coldness and humidity; but would be injured by the air and water, were it not for the prevention of an oil, which he distributes all over them with his snout; the bags we have already mentioned are undoubtedly the magazines of this fluid. See plate XI. fig. 3. The beavers inhabit the same mansion in great numbers, unless violent heats, or inundations, the pursuits of hunters, scarcity of provisions, or the extraordinary increase of their offspring, obliges them to separate. In order to raise themselves a convenient abode, they chuse a situation that abounds with sustenance, and is washed by a rivulet, and where they may form a convenient reservoir of water for

for their habitation. They begin with building a mole or causey, in which the water may rise to a level with the first story. This causey, at the foundation, may contain ten or a dozen feet in thickness: it descends in a slope on the side next the water, which, in proportion to its elevation, gravitates upon the work, and presses it with a strong tendency towards the earth. The opposite side is raised perpendicularly, like our walls; and the slope, which at its basis is twelve feet broad, diminishes towards the top, whose breadth does not exceed two feet: the materials of this work are wood and clay. The beavers, with an admirable facility, cut the pieces of wood, some as thick as a man's arm, and others as large as the thigh, and from two to four, five, or six feet in length, and sometimes more, in proportion to the ascent of the slope. They drive the extremity of these, very near each other, into the earth, and take care to interlace them with other stakes, more slender and supple. But as the water, without some other prevention, would glide through the cavities, and leave the reservoir dry, they have recourse to clay, which they perfectly know how to procure, and with which they close up all the interstices both within and without, and this entirely prevents all evacuation. They continue to raise the dikes proportionably to the water's elevation and plenty. They are likewise very sensible that their materials are not so easily transported by land as by water; and therefore take the opportunity of its increase to swim, with mortar placed on their tail, and stakes of wood between their teeth, to every place where they have occasion for these materials. If the violence of the water, or the footsteps of hunters, who pass over their work, damage it in any degree, they immediately repair the fracture, visit all the edifice, and with indefatigable application, refit and adjust whatever happens to be disconcerted: but when they are too frequently persecuted by the hunters, they only work in the night, or entirely discontinue their labours. When the causey, or dyke, is completed, they begin to form their cells, which are round, or oval apartments, divided into three partitions, raised one above another. The first is sunk below the level of the dyke, and generally full of water; the other two are formed above it. They raise this structure in a very solid manner, on the edge of their causey, and always in stories, that, in case the water should ascend, they may dwell in a higher situation. If they find

any little island near the reservoir, they fix their dwelling there, which is then more solid, and they are less incommoded with the water, in which they are capable of continuing but a short time; but if they are not favoured with this advantage, they drive stakes into the earth with their teeth to fortify the building against the winds and water. At the bottom they strike the two openings to the stream; one conducts them to the place where they bathe, and which they always keep very decent; the other is a passage to that quarter, where they carry out every thing that would soil or rot the upper apartments. There is a third aperture much higher, calculated to prevent their being shut up, when the ice hath closed the openings into the lower lodgments. They sometimes build their houses entirely on dry land, and sink ditches, five or six feet deep, in order to descend to the water. They employ the same materials and industry in the structure of their dwellings, as they use for their causey. The walls of the building are perpendicular, and two feet thick. As their teeth are more serviceable than saws, they cut off all the projections from the wood that shoot out beyond the perpendicular of the wall; after which they work up a mixture of clay and dry grass into a kind of mortar, with which, by the aid of their tails, they rough-cast the out and insides of the work. The edifice is vaulted within, and generally rises in an oval figure. The dimensions are proportioned to the number of the intended inhabitants. Twelve feet in length, and ten in breadth, are sufficient for eight or ten beavers. If the number encreases, they enlarge the place accordingly. It has been asserted for a truth, that there have been found above an hundred of these creatures in different lodgments communicating with one another: but these populous societies are very rare, because they are too unmanageable and tumultuous, and the beavers are generally better acquainted with their own interest. They associate to the number of ten or twelve, and sometimes a few more.

Merchants distinguish three sorts of beavers, though they are all the skins of the same animal; the new beaver, the dry beaver, and the coat beaver.

The new beaver, which is also called white beaver, or Muscovy beaver, because it is commonly kept to be sent to Muscovy, is that which the savages catch in their winter hunting. It is the best and the most proper for making fine furs, because it has lost none of its hair by shedding.

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The dry beaver, which is sometimes called lean beaver, comes from the summer hunting, which is the time when these animals lose part of their hair.

Though this sort of beaver is much inferior to the other, yet it may also be employed in furs; but it is chiefly used in the manufacture of hats. The French call it summer castor, or beaver.

The coat beaver is that which has contracted a certain gross and oily humour from the sweat which exhales from the bodies of the savages who wear it for some time. Though this sort be better than the dry beaver, yet it is used only in the making of hats.

* **BEAUMONT (FRANCIS)** a celebrated dramatic poet, who, in concert with Mr. Fletcher, wrote a great number of plays; he was the son of Francis Beaumont, one of the judges of the common-pleas, and was born at Grace Dieu, in Leicestershire, about the year 1585 or 1586. He was educated at Cambridge, and afterwards admitted a student in the Inner Temple; but his fondness for the muses would not suffer him to apply his thoughts to the study of the laws. He died in March, 1615, before he was thirty years of age.

Mr. Beaumont, besides the plays in which he was jointly concerned with Mr. Fletcher, wrote a small dramatic piece, intitled, *A Masque of Gray's Inn Gentlemen*, and the *Inner Temple*, with several poems printed together, in octavo. Beaumont and Fletcher generally wrote in conjunction. The former was remarkable for the accuracy of his judgment, and the latter for the force of his imagination.

BEAUTY, a general term for whatever excites in us pleasing sensations, or an idea of approbation. We may distinguish the motion annexed to beauty into ideas and sensations; the former of which possess the mind, the latter affect the heart. Thus an object may please the understanding without interesting the senses; and, on the other hand, agreeable sensations may be excited by objects, whose ideas have no claim to our approbation. In these distinctions the difficulty, or rather impossibility, of fixing a general characteristic of beauty consists; because the ideas and sensations of different persons vary, according to their different turns of mind, and habitudes of body; and consequently the relations of objects to those ideas and sensations vary in the same manner. Hence arise the various opinions of beauty in women, painting, statuary, &c.

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BEAUTY, in architecture, painting, and other arts, is the harmony and justness of the whole composition taken together.

BECALMING, in navigation. When the wind is interrupted in its passage to a vessel by any contiguous body, as land, a high sea behind, or another ship, it is called becalming her, as the sails at that time remain in a state of rest, and are deprived of their governing power.

* **BECLES**, a town in Suffolk; it has a good market on Saturdays, and three fairs, on Ascension-day, St. Peter, June 29, and October 2, for petty chapmen, as also on July 15, for toys. It is a large town, with a handsome church. Here the sessions for the liberty of Blithing are commonly held. It is fifteen miles south-west of Yarmouth, thirty-nine north-north east of Ipswich, and one hundred and nine north-east of London. Long. 4. 30. E. Lat. 52. 28. N.

* **BECKET (St. THOMAS)** archbishop of Canterbury in the reign of king Henry II. was the son of Gilbert, a merchant of London, and Maud, a Saracen lady. He was born in London, in 1119, educated at Oxford, then at Paris, and afterwards studied the civil law at Bononia, in Italy. On his return to England, he was made archdeacon of Canterbury, provost of Beverley, and prebendary of Lincoln and St. Paul's; and in 1158, he was made high chancellor, and preceptor to the young prince Henry. Becket now laid aside the ecclesiastical habit, affecting the dress and manners of a courtier, and at the same time discharged the duties of his station, so as to give entire satisfaction. In 1160, he was sent by the king to Paris, to treat of a marriage between prince Henry, who was then but seven years old, and the king of France's daughter, then no more than three, in which negociation Becket succeeded, and returned with the young princess to England. He had not, however, been much above four years chancellor, before the king advanced him to the see of Canterbury; soon after which, he resigned the office of chancellor, and exchanged the gaiety and luxury of a courtier for the gravity and austerities of a monk. At the same time, he began vigorously to exert himself in defence of the pretended rights and privileges of the church, by prosecuting some of the nobility and others, for lands and possessions, he maintained, they had usurped from the see of Canterbury; and as he proceeded with the greatest turbulence and obstinacy,

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he alienated from himself the minds of the king and nobility, and soon came to an open rupture with them; and growing more troublesome than before, the king demanded the public money he had squandered away; upon which he fled in disguise to a monastery in Flanders, and from thence went to France, where he issued out excommunications against various persons who had opposed or violated the supposed rights of the church. This however only served to exasperate men's minds against him, and the king was so provoked at his excommunicating several of his great officers and immediate attendants, that he banished all his relations. However, the king of France by his intreaties, and the pope by his persuasions and threats, at last brought about a reconciliation, and Becket returned to England, after an absence of seven years. When the king had caused his son prince Henry to be crowned at Westminster, by the archbishop of York; Becket prevailed on the pope to suspend the archbishop, and excommunicate the bishops who had assisted him. Becket, therefore, almost as soon as he arrived, received an order from the young king to absolve the bishops that he had suspended and excommunicated; but refusing to comply, the archbishop of York, and the bishops of London and Salisbury, immediately carried their complaints to the old king, who was then in Normandy, and was so highly exasperated at this fresh instance of his obstinacy, that he could not forbear exclaiming with great warmth, "That he was very unfortunate to have maintained so many cowardly and ungrateful men in his court, none of whom would revenge him of the injuries he had sustained from one turbulent priest." These words were heard by four gentlemen of the court, who immediately formed a design against the archbishop's life, which they executed in the cathedral church at Canterbury, on the 29th of November, 1171. Upon this, all divine offices ceased in the church of Canterbury for one year wanting nine days, at the end of which, by order of the pope, it was consecrated anew. Two years after, Becket was canonized; and the same year, a particular collect was appointed to be read in all the churches of the province of Canterbury, for expiating the guilt of his murder. The next year, Henry returning from France, went to Canterbury, where he did penance as a testimony of his grief for the murder. When he came within

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fight of the church where the archbishop was buried, he alighted off his horse, and walked barefoot, in the habit of a pilgrim, till he came to Becket's tomb, where, after he had prostrated himself, and prayed a considerable time, he submitted to be scourged by the monks, and passed all that day and night without any refreshment, kneeling upon the bare stones; which done, he bestowed great benefactions upon the church of Canterbury. In 1221, Becket's body was taken up, fifty years after his murder, in the presence of king Henry III. and a great concourse of the nobility and others, and deposited in a rich shrine, erected at the expence of Stephen Langton, archbishop of Canterbury, which was soon visited from all parts, and enriched with the most costly gifts and offerings. He was a man of great talents, of elevated thoughts, and of invincible courage; but of a most violent and turbulent spirit; excessively passionate, haughty, and vain-glorious; in his resolutions inflexible, in his resentments implacable.

BED of the Carriage of Cannon, the thick plank that lies under the piece, and forming, as it were, the body of the carriage.

BED, in gardening, a piece of ground, raised a little above the level of the adjoining ground, and in which seeds are sown, or plants set.

* **BEDFORD**, the county town of Bedfordshire, is divided by the river Ouse, so as to resemble two towns, which are joined by a stone bridge, that has two gates to stop the passage when necessary. The market on the south side, is on Tuesday for live cattle; and on Saturday, on the north side, for corn. The situation is low, and the houses not extraordinary; and there is one street, which runs the whole length of the town, which is seven furlongs, and excels all the rest. It has five churches, St. Peter's, St. Cuthbert's, and St. Paul's, on the north side of the river; and St. John's, and St. Mary's on the south. It had a castle, which is now destroyed. Bedford is governed by a mayor, two bailiffs, a recorder, twelve aldermen, two chamberlains, a town clerk, and three serjeants. It sends two members to parliament, and gives the title of duke to the noble family of the Russels. It has six fairs, viz. on the first Tuesday in Lent, April 21, July 5, August 21, October 11, and December 19, all for cattle of every kind. A great part of Bedford priory is still standing in good repair, it being converted into private uses, and now

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belongs to the lord Ashburnham. It is fifty-two miles north-by-west from London. Long. o. 20. W. Lat. 52. 6. N.

* **BEDFORDSHIRE**, twenty-four miles long, and sixteen broad, and is bounded on the north by Northamptonshire and Huntingdonshire, on the east by Cambridgeshire, on the west by Buckinghamshire, and on the south by Hertfordshire. The principal river is the Ouse. The air is temperate, clear, and healthy, and the soil fruitful. The commodities it produces are fuller's earth, cattle, venison, fowls, timber, wood, wheat, and barley; the chief manufactures are bone-lace and straw hats; the principal towns are, Bedford, the county town, Dunstable, Woburn, Ampthill, Leighton, Luton, Shefford, Biggleswade, and Potton. The noblemen's seats are Woburn-abbey, belonging to the Duke of Bedford; Wrest-house, six miles south of Bedford, belonging also to the duke of Bedford; Ampthill is now the duke of Bedford's; Luton Hoo, belonging to lord Bute; Elettice, to lord St. John; Hawnes, to lord Granville; and Bromhall to lord Trevor. This county sends four members to parliament, two for the county, and two for Bedford. It is in the diocese of Lincoln; it contains five hundred and fifty villages, one hundred and sixteen parishes, twelve thousand, one hundred, and seventy houses, and is computed to contain upwards of fifty thousand inhabitants.

BEDS of Minerals, certain strata or layers of matters disposed over each other.

Lords of the BED-CHAMBER, ten lords, who attend in their turns each week, during which time they lie in the king's bed-chamber, and wait upon him when he dines in private.

BEE, in natural history, a small insect, famous for its industry. The bee is divided by two ligaments, into three parts or portions, the head, the breast, and the belly. The head is armed with two jaws and a trunk, the former of which play like two saws, opening and shutting to the right and left. The trunk is long and taper, and extremely pliant and flexible, being destined by nature for the insect to probe to the bottom of the flowers through all the impediments of their chives and foliage, and drain them of their treasured sweets; but were this trunk to be always extended, it would prove inconvenient, and be liable to be injured by a thousand accidents; it is therefore of such a structure, that, after the performance of its necessary functions, it may be contracted, or rather

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folded up; and besides this, it is fortified against all injuries by four strong scales, two of which closely sheath it, and the two others, whose cavities and dimensions are larger, encompass the whole. From the middle part or breast of the bee grows the legs, which are six in number; and at the extremity of the paws are two little hooks, discernible by the microscope, which appear like sickles, with their points opposite to each other. The wings are four, two greater and two smaller, which not only serve to transport them through the air, but, by the noise they make, to give notice of their departure and arrival, and to animate them mutually to their several labours. The hairs with which the whole body is covered, are of singular use in retaining the small dust that falls from the chives of the flowers, of which the wax is formed. The belly of the bee consists of six rings, which slide over one another, and may therefore be lengthened or contracted at pleasure; and the inside of this part of the body contains the intestines, the bag of honey, the bag of poison, and the sting. The office of intestines is the same as in other animals. The bag of honey is transparent as crystal, containing the sweet juices extracted from flowers, which the bee discharges into the cells of the magazine for the support of the community in winter. The bag of poison hangs at the root of the sting, through the cavity of which, as through a pipe, the bee ejects some drops of this venomous liquor into the wound, and so renders the pain more excessive. The mechanism of the sting is admirable, being composed of two darts, enclosed within a sheath that tapers into a fine point, near which is an opening to let out the poison. The two darts are ejected through another aperture, which, being armed with several sharp beards like those of fish-hooks, are not easily drawn back again by the bee; and indeed she never disengages them if the wounded party happens to start and put her into confusion; but if one can have patience to continue calm and unmoved, she clinches those lateral points round the shaft of the dart, by which means she recovers her weapon, and gives less pain to the person stung. The liquor which at the same time she infuses into the wound, causes a fermentation, attended with a swelling, which continues several days; but that may be prevented by immediately pulling out the sting, and enlarging the puncture, to let the venomous matter have room to escape.

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Let us now consider the generation, polity and labours of these insects, the true knowledge of which is very much owing to the modern invention of glass hives, through which all the secrets of the community are laid open to a curious observer. Any person who carefully examines a hive at different seasons of the year, will distinguish three sorts of bees; of which the far greater number are the common working bees, who do all the business of the hive, and seem to be neither male nor female. The working bee is represented on (plate XI. fig. 4.) The second sort, called drones, are the males, are somewhat larger, (fig. 5.) have no sting, nor even stir from the hive, but live upon the honey prepared by the others. The third sort is a much larger and longer bodied bee, of which there is often but one in a hive, at least, but one in every swarm or colony of young bees, who are from time to time detached from the hive in search of another habitation. This large bee is what the ancients called the king, from the respect they always saw paid to it by the other bees; but, being the female, the moderns more properly give it the title of queen, or mother of the swarm. See fig. 6.

While the hive is sufficient to contain the bees without inconvenience, the society live peaceably together; but when their numbers are multiplied, so that their habitation is too small, the young brood quit the place of their nativity, and fly in quest of a new settlement. The swarm that goes out consists of the common bees, under the conduct of one female or queen; or, if two queens come out of the same hive, then the body of common bees divide into two parts, each following one female, both parties, however, when they alight out of the air, usually settle near each other on a branch of a tree; and then those bees which form the smallest swarm go off, one by one, to the other cluster, deserting the queen they followed, who is at length murdered by her subjects. The swarm being thus united, and hanging down from the tree, the countryman, who is always vigilant on these occasions, provides for their accommodation a hive rubbed with balm, thyme, and other odoriferous herbs; into which he gently brushes them from the branch, and carries them to a stand prepared for that purpose. All this the bees bear very patiently, and, after they are a little composed, begin to think of forming themselves convenient apartments in their new habitation. When they begin this work, it is observed they divide themselves into four parties,

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one of which is destined to the fields to provide materials for the structure, the second works upon those materials, and forms them into a rough sketch of the dimensions and partitions of the cells; the third examines and adjusts the angles, removes the superfluous wax, polishes the work, and gives it its necessary perfection; and the fourth is employed in bringing provisions to the labourers.

The form of the cells of the honey-comb is hexagonal, which figure, besides what is common with a square and equilateral triangle, has the advantage of including a greater space within the same surface. See Comb.

The expedition of the bees in their labour is almost incredible; for, notwithstanding the elegance and just proportions of the work, they are so indefatigable, that they will, in one day, finish a honey-comb, a foot long, and six inches broad, capable of receiving three thousand bees. We have already observed, that the bees which build the cells work but a little while at a time; but it is different with regard to those that polish them, for they work a long while, and with great expedition, never intermitting their labour, unless it be to carry out of the cell the particles of wax taken off in the polishing; and, to prevent this wax from being lost, other bees stand ready to receive it from the polishers, and carry it to some other part, in order to its being employed.

Each comb has two rows of cells opposite to each other, which have their common bases. The thickness of each comb is something less than an inch; and, consequently, the depth of each cell about five lines; but at the same time the breadth of each is little more than two.

All the combs are constructed with cells of this size, except a small number, of others in some particular parts of the hive, which are larger, and appropriated to the lodging eggs, that afterwards become drones, or male bees.

There are also, in some parts of the hive, three or four cells bigger than the others, and constructed in a different manner. They are of a spheroidal figure open in the inferiour part, and attached to the extremities of the combs.

When the cells are completed, the queen takes possession of those she likes best to deposit her eggs in, and the rest are left to be filled with honey. She lays one egg in each cell, and sometimes more than an hundred of those eggs in a day; but what is still more remarkable, she lays those eggs which are to produce common bees in cells

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cells of the common shape and size, those that are to become drones, or males, in the cells of a larger size, and deposits those which are to become females, like herself, in the spheroidal cells already described.

These eggs, after lying some time in the cells, are hatched into maggots, and fed with honey for ten or twelve days, after which the other bees close up the cells with a thin piece of wax; and under this covering they become gradually transformed into bees, in the same manner as silkworms are into butterflies. Having undergone this change, the young bees pierce through their waxen doors, wipe off the humidity from their little wings, take their flight into the fields, rob their flowers of their sweetness, and are perfectly acquainted with every necessary circumstance of their future conduct. As to the males or drones, which are destined only to propagate their species, they live very comfortably for about three months after they are hatched: but when that time is over, and the females are impregnated, the common bees either kill them, or drive them from the hive, as burdensome to the community, and not a drone is to be found till the next season.

The method in which the bees collect their wax and honey deserves to be a little explained. At the bottom of all flowers there are certain glands which contain more or less honey, that is, the most exalted particles of the sugary juices of the plant. These juices the bee sucks up with her proboscis or trunk abovementioned, and draws it into its mouth; and when it has thus taken a sufficient quantity into its stomach, it returns to the hive, and discharges the honey into the common magazine.

When the cells prepared to receive it are full, the bees close up some with wax till they have occasion for the honey; the rest they leave open, to which all the members of the society resort, and take their repast with a very instructive moderation.

Wax is composed of the farina, or dust, formed on the apices of flowers. This the bees collect, and with their fore-feet and jaws, roll up into little balls, which they convey one at a time, to the feet of their middle legs, and from thence to the middle joint of their hind legs, where there is a small cavity like a spoon, to receive the burden. When those bees, who are employed in collecting the wax, return to the hive, they are assisted by their companions in discharging their load, who by little and little pick off the wax from their legs,

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and convey it to the common treasure. With this they build their combs, observing a wonderful frugality, not the least grain of it being wasted or neglected.

Considering the advantages arising from the labours of bees, is it not strange that our country-people are not more solicitous about the preservation and increase of these animals? It is certain they would multiply prodigiously with proper management; and we might, upon a moderate computation, have five thousand times as much wax and honey produced in this kingdom as we have at present. Some attempts of this kind have already been made in our own country, and there is not the least reason to doubt but they will, if pursued, be attended with success.

Description of Mr. Thorley's BEE-HIVE. This ingenious and assiduous gentleman, having, from near sixty years experience, found that his bee-hives would be productive of much greater profit to the owners of bees, and also render that cruel and ungenerous practice of destroying these animals not only unnecessary, but pernicious, presented a bee-hive of this construction to the Society of Arts, &c. in the Strand, who readily purchased another of his hives filled with honey, &c. that they might be inspected by the curious, and brought into universal use; and from this bee-hive the view on plate XII. *fig. 1.* was drawn: The Society, persuaded that the invention would prove of the greatest advantage to this country, have published a premium of two hundred pounds, in order to introduce either Mr. Thorley's, or some other method of a similar kind, whereby much larger quantities of honey and wax might be procured, and, at the same time, the lives of these laborious and useful insects preserved.

The bottom part, marked *A*, is an octangular bee-box, made of deal boards, about an inch in thickness, the cover of which is about 17 inches in diameter, but the internal part only 15½, and its height 10 inches. In the middle of the cover of this octangular box is a hole, which may be opened or shut at pleasure, by means of a slider *d*. In one of the pannels is a pane of glass, covered with a wooden door, *b*. The entrance, *a*, at the bottom of the box, is about three inches and a half broad, and half an inch high. Two slips of deal, about half an inch square, cross each other in the center of the box, and are fastened to the pannels by means of small screws. To these slips the bees fasten their combs.

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In this octangular box the bees are hived, after swarming in the usual manner, and there suffered to continue till they have built their combs, and filled them with honey, which may be known from opening the door, and viewing their works through the glass pane, or by the weight of the hive. When the bee-master finds his laborious insects have filled their habitation, he is to place a common bee-hive of straw, represented at B, made either flat at the top, or in the common form, on the octangular box, and draw out the slider, by which a communication will be opened between the box and the straw hive; the consequence of which will be, that those laborious insects will fill this hive also with the product of their labours. When the bee-master finds the straw hive is well filled, he may push in the slider, and take it away, placing another immediately in its room, and then draw out the slider. These indefatigable creatures will then fill the new hive in the same manner. By proceeding in this method, Mr. Thorley assured the Society, that he had taken three successive hives, filled with honey and wax, from one single hive, during the same summer; and that after he had laid his insects under so large a contribution, the food still remaining in the octangular box, was abundantly sufficient for their support during the winter. He added, that if this method was pursued in every part of the kingdom, instead of that cruel method of putting the creatures to death, he was persuaded, from long experience, that wax would be collected in such plenty that candles might be made with it, and sold as cheap as those of tallow are at present.

Mr. Thorley has also added another part to his bee-hive, which cannot fail of affording the highest entertainment to a curious and inquisitive mind. It consists of a glass receiver, represented at D, 18 inches in height, 8 inches in diameter at the bottom, and in the greatest part 13. This receiver has a hole at the top, about an inch in diameter, through which a square piece of deal E is extended to nearly the bottom of the vessel, having two cross bars to which the bees fasten their combs. When the bees have filled the straw hive, (which must have a hole in the center C, covered with a piece of tin) Mr. Thorley places the glass-receiver upon the top of the straw hive, and draws out the piece of tin: the bees, now finding their habitation enlarged, pursue their labours with such alacrity, that they fill this glass hive like-

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wise with their stores. And as this receptacle is wholly transparent, the curious observer may entertain himself with viewing the whole progress of their works. One of the hives, now deposited at the Society's rooms in the Strand, is filled with the produce of the labours of those insects; and the glass hive is supposed to contain near thirty pounds of honey. See a further account of managing these useful creatures, and the nature of their productions, under the articles, SWARM, HIVE, HONEY, WAX, &c.

BEE-BREAD, a substance found in the cells of bees, and which is thought necessary to their subsistence. It is nothing more than wax itself unprepared.

BEECH, *Fagus*, a large and beautiful tree, whose leaves resemble those of the horn-beam: the male flowers grow together in a round bunch, and are produced at remote distances from the fruit on the same tree: the fruit consists of two or three triangular nuts, which are inclosed in a rough hairy rind, divided into four parts.

This tree is propagated by sowing the mast; the season for which is any time from October to February; only observing to secure the seeds from vermin, when early sowed; which, if carefully done, the sooner they are sown the better, after they are fully ripe: a small spot of ground will be sufficient to raise a great number of those trees from the seeds; but you must be very careful to keep them clear from weeds; and if the plants come up very thick, you should not fail to draw out the strongest of them the autumn following, that those left may have room to grow: so that, if you husband a seed-bed carefully, it will afford a three years draught of young plants, which should be planted in a nursery; and if designed for timber-trees, at three feet distance row from row; and eighteen inches asunder in the rows. But if they are designed for hedges (to which the tree is very well adapted), the distance need not be so great; two feet, row from row, and one foot in the rows will be sufficient. In this nursery they may remain two or three years, observing to clear them from weeds, as also to dig up the ground between their roots, at least once a year, that their tender roots may the better extend themselves each way; but be careful not to cut or bruise their roots, which is injurious to all young trees: and never dig the ground in summer, when the earth is hot and dry; which,

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which, by letting in the rays of the sun to the roots, is often the destruction of young trees.

BEECH-MAST, the fruit of the beech-tree, excellent for the fattening of hogs, &c.

BEER, a well known liquor, made with malt and hops, and used in those parts of Europe where vines will not grow. See **MALT**, **BREWING**, &c.

It is chiefly distinguished from ale, by the quantity of hops, which is greater in beer, and thereby renders the liquor bitterer and fitter to keep. There are various differences in beers, proceeding from the ways of brewing, from the different countries or climates, from the water that is used, from the time spent about them, from the ingredients made use of, and the proportions of these ingredients. That beer is reckoned the best which is clear, and of a pale colour, of a pungent and agreeable taste, that sparkles upon being poured into a glass, and is neither too old nor too new.

Bottling of BEER is best performed in this manner: first, take clear water, or such as has been well impregnated with the essence of some herb; to every quart of which add half a pound of sugar. Afterwards, having caused this water to be gently boiled and scummed, add a few cloves: let it cool in order to have barm or yeast put to it, and being brought to work, take off the scum again: that done, while it is in a smiling condition, put three spoonfuls into each bottle, which is to be filled up with beer, and securely corked. A few crystals of tartar do also very well in bottled beer; especially if a few drops of the essence of barley, wine, or some essential spirits be added.

BEER-MEASURE. See **MEASURE**.

BEESTINGS, a term used by country people for the first milk taken from a cow after calving.

BEET, *Beta*, in botany. Different sorts of this plant are cultivated in our culinary gardens; a whitish-leaved called *scula*, or *cicla*, a green-leaved, and a reddish-leaved, all with thick white roots; and a long-rooted; and a turnip-rooted, all over red. They are all biennial.

The juice, both of the roots and the leaves of the red and white beets, snuffed up the nose, proves a powerful errhine, occasioning a copious discharge of mucus, without provoking sneezing.

Mr. Marggraf observes, that a good sugar is obtainable from the juice of the fresh roots, by the method practised abroad for

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preparing it from the sugar-cane. All kinds of beet, whether white or red, should be sown in March, in a deep and light soil. The former is cultivated for its leaves, and the latter is esteemed for its root, which, when boiled, cold, and cut into thin slices, makes a grateful mixture with winter sallads. The reddest and largest roots are the tenderest and most esteemed: consequently the principles of the new husbandry are extremely applicable to this plant; and we have accordingly been told that M. de Chateauvieux had beet roots, managed this way, which measured from five to sixteen inches in diameter towards their top, or thickest part, though raised in a common field, and cultivated only with the horse-hoe. The beet roots will be fit for use in autumn, and will continue good all the winter; but they will begin to grow hard and stringy in the spring, when they will begin to shoot. The seeds of this plant, by which only it is propagated, ripen about the end of August, or in the beginning of September. They are round, rough, and about the bigness of a middling pea. To obtain them in perfection, some of the finest roots that have been preserved from the winter's frosts are replanted in March, and let run up to seed. The kitchen-gardeners about London, in order to save ground, frequently sow the red beet with carrots, parsnips, or onions, and afterwards draw up their carrots and onions when they are young, to make room for the growth of the beet: but, unless they pull them up very young indeed, it is much better to sow the beet separately.

BEETLE, *Scarabeus*, in the history of insects. See **SCARABÆUS**.

BEETLE, a wooden instrument for driving piles, &c.

It is likewise called a *stamper*; and by paviers a *rammer*.

BEGLEBERG, a governor of one of the principal governments in the Turkish empire. They are become almost independent, and have under their jurisdiction several sangiacs, or particular governments, and beys, agas, and other officers who obey them.

BEGUINS, congregations of devout young women, who maintain themselves by the work of their hands, leading a middle kind of life between the secular and religious. These societies consist of several houses placed together in one inclosure, with one or more churches, according to the number of beguins. There is in every house a prioress, without whose leave

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leave they cannot stir out. Their vow is conceived in these terms: "I promise to be obedient and chaste, as long as I continue in this beguinage." They observe a three years noviciate, before they take the habit, and the rector of the parish is the superior, but can do nothing without the advice of eight beguins. They are established in several parts of Flanders.

* **BEHEADING** a nobleman was first introduced into England, in 1074, Roger, earl of Hereford, being the first that was executed in that manner.

BEHEN, in pharmacy, a name appropriated to two roots, very different from one another in shape, colour, and their whole external appearance, and distinguished by the names of white and red behen.

We have them both from the Levant, and the same virtues are attributed to both kinds; but the white is supposed to possess them in the greatest degree; they are said to be great cordials and restoratives, and to be good in nervous complaints.

BEL, or **BELUS**, the supreme god of the ancient Chaldeans or Babylonians. He was the founder of the Babylonian empire, and is supposed to be the Nimrod of Scripture, and the same as the Phœnician Baal.

BELEMNITES, in natural history, a kind of fossil substance, with regard to whose origin naturalists are divided. It is generally called the thunder-bolt.

The shape of the belemnites is sometimes conical, sometimes cylindrical, and commonly consists of a black and horny substance.

They are found in all sorts of strata, in clay, gravel, beds of stone, and often in loose flints. They are sometimes found covered with a sparry crust of a different texture from the body of the mass.

* **BELGRADE**, a city of Turkey, in Europe, and the capital of Servia, seated at the confluence of the Save and the Danube. The Danube is very rapid near this city, and its waters look whitish. This city is built on a hill, and was once large, strong, and populous. The suburbs are very extensive, and resorted to by Turkish, Jewish, Greek, Hungarian, and Slavonian merchants. The streets where the greatest trade is carried on is covered with wood, to shelter the dealers from the sun and rain. The rivers render it very convenient for commerce, and as the Danube falls into the Black Sea, the trade is easily extended to distant countries, which renders it the staple town in these parts: and

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as that river runs up to Vienna, they send goods from thence with a great deal of ease. The Armenians have a church here, and the Jews a synagogue; the shops are but small, and the sellers sit on tables, disposing of their commodities out of a window; for the buyers never go on the inside. There are two exchanges built with stone, and supported with pillars, not unlike the Royal Exchange at London. There is likewise a caravansera or public inn, and a college for young students. It has been taken backwards and forwards by the Turks and Imperialists several times; but was ceded to the Turks, in 1739, and the fine fortifications demolished. It is three hundred and forty miles south-east of Vienna, and four hundred and fifty north-west of Constantinople. Long. 21. 2. E. Lat. 45. 10. N.

* **BELIDES**, in fabulous history, the fifty daughters of Danaus, who were also called Danaides. Danaus quarrelling with his brother Ægyptus, the latter proposed a reconciliation, by marrying his fifty sons to their cousin Germans the Belides; to this Danaus consented; but being told by an oracle, that he should be dispossessed of his kingdom by a son-in-law, he directed his fifty daughters to kill their husbands on the first night of their marriage. This advice they all of them followed, except Hypermnestra, who suffered her husband Lynceus to escape, who afterwards dethroned Danaus. For this crime, the rest of the Belides were punished in Tartarus, by being condemned to the endless labour of pouring water into a vessel full of holes.

BELIEF, a persuasion or strong assent of the mind to any proposition; but, in a more restrained and technical sense, that kind of assent which is founded on the authority or testimony of some persons attesting the truth of any matter proposed.

BELIEF is generally distinguished into divine and human, not with regard to the proposition believed, but with regard to the testimony on which we believe it. When God reveals any thing to us, this gives us the testimony of divine belief. See **FAITH**.

But what man only acquaints us with, produces only a human belief. See **EVIDENCE**.

BELL, a well known machine, ranked by musicians among the musical instruments of percussion. The metal of which it is made, is a composition of tin and copper: the proportion of one to the other is about twenty pounds of pewter or

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twenty.

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twenty-three pounds of tin, to one hundred weight of copper. Bell-metal is prohibited to be imported. The use of bells was not known in the Eastern church till the year 865, when Ursus Patriſiacus, duke of Venice, made a present of ſome to Michael, the Greek emperor, who firſt built a tower to the church of Sancta Sophia, to hang them in. Who firſt brought bells into uſe in the Latin church, is a thing not yet determined; ſome aſcribing them to pope Sabinianus, ſucceſſor of St. Gregory, in the year 604; and others to Paulinus, biſhop of Nola, cotemporary with St. Jerom: but the latter opinion ſeems to be a vulgar error, and to have no better foundation than Paulinus's being biſhop of Nola in Campania, where it is pretended bells were firſt invented, and thence called Nolaæ and Campanæ. Cardinal Bona would have it thought, that they began to be uſed in the Latin church immediately upon the converſion of the emperors to Chriſtianity, becauſe the tintinnabula, or leſſer ſort of bells, had been uſed before by the heathens to the like purpoſe: but there is no ancient author that countenances his conjecture.

Diving BELL. See DIVING.

BELL-FOUNDRY. See FOUNDERY.

BELL-FLOWER, *Campanula*, in botany; ſee *CAMPANULA*.

BELL-WEED, *jacea nigra*, in botany; ſee *JACEA*.

BELLA-DONNA, in botany, a genus of the pentandria-monogynia claſs of plants, called by Linnæus *atropa*.

* **BELLE-ISLE**, a iſland of France, on the coaſt of Britany, about thirteen miles in length, and five in breadth; and was made a duchy, in 1742, in favour of marſhal Belleiſle. It has a mixture of craggy rocks, ſalt-works, and fertile land; it contains four pariſhes, has a good citadel, and a convenient port. It was taken by the Engliſh at the expence of many lives, on the 7th of June, 1761; but was reſtored to the French by the late treaty of peace. Long. 3. 5. W. Lat. 47. 20. N.

BELLING of *Hops* denotes their opening and expanding themſelves. See *HOPS*.

BELLIS, *Daisy*, in botany, a genus of plants, divided into almoſt fifty ſpecies, from the variations in the colour and duplicature of the flowers.

There are two ſpecies of this plant uſed in medicine, diſtinguiſhed by the epithets major and minor.

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The former is perennial, grows wild in corn and paſture grounds, and flowers in May and June. The leaves of this plant have been recommended in diſorders of the breſt both aſthmatical and phthiſical, and as diuretics. Geoffroy relates, that the herb, gathered before the flowers have come forth, and boiled in water, imparts an acrid taſte, penetrating and ſubtile like pepper; and that this decoction is an excellent diuretic and vulnerary.

BELLIS Minor, the common daisy, is alſo perennial, common almoſt every where, and flowers early in ſpring. This plant ſtands recommended as a vulnerary, detergent, and reſolvent, in diſeaſes of the breſt, internal bruises, hypochondriacal complaints, and diſorders proceeding from the drinking of cold liquors when the body has been much heated. Schreder informs us, that the leaves and flowers looſens the belly.

The leaves, which have been chiefly made uſe of, are in taſte ſlightly acrid. The roots are conſiderably ſtronger, of a ſubtile penetrating pungency, not hot or fiery, and, though at preſent diſregarded, promiſe to be a medicine of no ſmall virtue.

BELLON, a diſtemper common in countries where they ſmelt lead ore; as alſo among plumbers and painters. It is attended with languor, intolerable pains and ſenſations of gripings in the belly, and generally coſtiveness. Beaſts, poultry, &c. as well as men, are ſubject to this diſorder: hence a certain ſpace round the ſmelting-houſes is called bellon-ground, becauſe it is dangerous for an animal to feed upon it.

The cure of this diſeaſe depends principally on cleaning the primæ viæ, or the firſt paſſages; and therefore, after bleeding ſuch patients, if they are plethoric, a vomit of emetic wine or tartar ſhould be given; which muſt be a doſe double to what would vomit another perſon, otherwiſe it would have no effect, eſpecially when the diſeaſe is violent, or has continued long.

Vomits and purgatives ought to be repeated at proper intervals, till the uneaſineſs in the ſtomach and guts from the diſeaſe is gone. At the ſame time, emollient, anodyne, and laxative clyſters are frequently to be injected for emptying the inteſtines, if the purgatives do not perform their duty.

When blood or matter are paſſed with the ſæces, the emetics and purgatives are

to be discontinued. The hot bath is also of the utmost service in this terrible disease, and seems indeed to be the last resource.

BELLONA, the pagan goddess of war. Some make her the mother, others the sister, and others the wife of Mars. Hesiod says, she was the daughter of Phorcys and Ceto. As the sun, among other names, is supposed to have been worshipped under that of Mars, so it is probable Bellona represented the moon. This deity had a temple at Rome, near the Circus Flaminius, before which stood the column of War, from whence the consul threw his lance, when he declared war against any king or nation. It was founded by Appius Claudius the blind, who was consul in the year of Rome 457. Camden remarks, that there was in the city of York a temple of Bellona, in the time of the emperor Severus: for Spartian, speaking of that city, relates, that Severus, coming thither, and intending to offer sacrifice, was conducted to the temple of Bellona by the mistake of an ignorant augur.

BELLONARI, in Roman antiquity, the priests of Bellona.

BELLONIA, in botany, a genus of plants.

BELLOWING, among sportsmen, the noise of roes in rutting-time.

BELLOWS, a machine so contrived as to agitate the air with great briskness, expiring and inspiring the air by turns, and that only from enlarging and contracting its capacity.

This machine is used in chambers and kitchens, in forges, furnaces, and foundries, to blow up the fire: it serves also for organs and other pneumatic instruments, to give them a proper degree of air: all these are of various constructions, according to the different purposes for which they are intended.

BELLY, in anatomy, that which is more usually called abdomen, or rather the cavity of the abdomen. See **ABDOMEN**.

BELOMANCY, a sort of divination by means of arrows, practised in the east, and particularly in Arabia.

BELT, *Beltus*, in the military art, a leathern girdle for sustaining the arms, &c. of a soldier.

BELTS, in astronomy, two zones, or girdles, surrounding the body of the planet of Jupiter, more lucid than the rest, and of unequal breadth. See **JUPITER**.

BELVIDERE, in the Italian architecture, a pavilion on the top of a

building, or an artificial eminence in a garden; the word literally signifying a fine prospect.

* **BENBOW (JOHN)** one of the most eminent English admirals, mentioned in our histories, was born about the year 1650, of a very ancient and honourable family in Shropshire. His father left him no other provision than the profession of a sailor, but before he was thirty, he became master, and in a great measure owner, of a ship, called the Benbow frigate, employed in the Mediterranean trade, during which time the following remarkable incident brought him to serve in the British navy. In 1686 he was attacked in his passage to Cadiz by a Saltee rover, against whom he defended himself with a very unequal number of men, with the utmost bravery, till at last the Moors boarded him, but were quickly beat out of the ship again, with the loss of thirteen men, whose heads he ordered to be cut off, and thrown into a tub of pork pickle. After the Revolution, captain Benbow was employed in protecting our trade in the channel, and bombarding the French ports, in which he shewed the most intrepid bravery, by going in person in his boat to encourage and protect the engineers, and his vigour and activity so effectually recommended him to King William, that he was early promoted to a flag. After the peace, he was sent with a squadron into the West-Indies, when he obliged the governor of Carthage to restore two English ships that had been seized by the Spaniards; and afterwards, sailing to Porto Bello, forced the governor, by his threats, to send him several vessels which had been taken under the pretence that the settlement of the Scots at Darien was a breach of the peace. Upon the war breaking out afresh, he was again sent into the West-Indies, where he distinguished himself by a memorable engagement against the French fleet, commanded by admiral Du Casse, on the 19th and 20th of August, 1702, near the coast of St. Martha, in which he had one of his legs shattered to pieces by a cannon-shot, and after its being dressed, he was carried up and placed with his cradle on the quarter-deck; but when he had a moral certainty of taking or destroying the whole French squadron, he had the vexation of losing this victory by the cowardice of several of his captains, who basely refused to continue the fight, and signed a paper, importing that they were resolved to desist. He opposed this resolution, so injurious to the honour of

the nation, to the utmost of his power, and on his arrival at Jamaica, ordered the officers who had behaved in this scandalous manner to be confined, and a court-martial being held for their trial, some of the guilty were condemned, and suffered according to their deserts. This brave commander died at Jamaica, of a consumption, occasioned by the cutting off his leg, on the 4th of November, 1702.

BENCH, or **BANC**, in law; see **BANC**.

Free **BENCH** signifies that estate in copyhold lands, which the wife, being espoused a virgin, has after the decease of her husband for her dower, according to the custom of the manor.

BENCHERS, in Inns of Court, the senior members of the society, who are invested with the government thereof.

BEND, in heraldry, one of the nine honourable ordinaries, containing a third part of the field when charged and a fifth when plain. It is sometimes, like other ordinaries, indented, ingrailed, &c. and is either dexter or sinister.

BEND Dexter is formed by two lines drawn from the upper part of the shield on the right, to the lower part of the left, diagonally. It is supposed to represent a shoulder belt, or a scarf, when worn over the shoulder.

BEND Sinister is that which comes from the left side of the shield to the right; this the French heralds call a barre.

BENDING, amongst seamen, the fastening two ends of rope to one another; to fasten a sail to its yard or stay; to fix the cable to the anchor. See **CABLE**, **CLENCH**, **SAIL**.

BENDS, in naval architecture, the thickest and strongest planks in a ship, reaching from end to end at her extreme breadth.

BENDY, in heraldry, the field divided into four, six, or more parts diagonally, and varying in metal and colour.

BENEDICTINES, in church history, an order of monks who profess to follow the rules of St. Benedict. In the canon law, they are styled black-friars, from the colour of their habit. The rules of St. Benedict, as observed by the English monks before the dissolution of the monasteries, were as follow: They were obliged to perform their devotions seven times in twenty-four hours, the whole circle of which devotions had a respect to

the passion and death of Christ; they were obliged always to go two and two together. Every day in Lent they were obliged to fast till six in the evening, and abated of their usual time of sleeping and eating; but they were not allowed to practise any voluntary austerity without leave of their superior: they never conversed in their refectory at meals, but were obliged to attend to the reading of the Scriptures: they also slept in the same dormitory, but not two in a bed; they lay in their cloths; for small faults they were shut out from meals; for greater, they were debarred religious commerce, and excluded from the chapel; and as to incorrigible offenders, they were excluded from the monasteries. Every monk had two coats, two cows, a table-book, a knife, a needle, and a handkerchief; and the furniture of their bed was a mat, a blanket, a rug, and a pillow.

BENEDICTION, or **BLESSING**.

The privilege of benediction was one of those early instances of honour and respect paid to bishops in the primitive church. The custom of bowing the head to them, and receiving their blessings, was become universal. In the western churches there was anciently a kind of benediction which followed the Lord's prayer; and after the communion the people were dismissed with a benediction.

BENEFICE, *Beneficium*, a church endowed with a revenue for the performance of divine service; or the revenue itself assigned to an ecclesiastical person, by way of stipend, for the service he is to do that church. All such preferments, except bishoprics, are called benefices; and all benefices are, by the canonists, sometimes styled dignities; but we now ordinarily distinguish between benefice and dignity, applying dignity to bishoprics, deaneries, archdeacons, and prebendaries; and benefice to parsonages, vicarages, and donatives. Benefices are divided by the canonists into simple and sacerdotal; in the first there is no obligation but to read prayers, sing, &c. the second are charged with the cure of souls, or the direction and guidance of consciences: such are vicarages, rectories, &c. The Romanists again distinguish benefices into regular and secular. Regular or titular benefices are those held by a religious, or a regular, who has made profession of some religious order: such are abbeys, priories, conventuals, &c. or rather a regular benefice is that which cannot be conferred on any but a religious.

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religious, either by its foundation, by the institution of some superior, or by prescription: for prescription, forty years possession by a religious makes the benefice regular. Secular benefices are only such as are to be given to secular priests, that is, to such as live in the world, and are not engaged in any monastic order. All benefices are reputed secular, till the contrary is made to appear. They are called secular benefices because held by seculars; of which kind are almost all cures. A benefice is vacated either by the natural death, or resignation of the incumbent, or the commission of some crime, as concubinage, perjury, simony, heresy, &c.

A BENEFICE in *Commendam* is that, the direction and management of which, upon a vacancy, is given or recommended to an ecclesiastic for a certain time, till he may be conveniently provided for. See *REGULAR* and *SECULAR*.

* **BENGAL**, a large kingdom in the East Indies, seated on a gulph of the same name. It is three hundred and ninety miles in length, and two hundred and thirty in breadth. It is now subject to the great mogul. It is bounded on the north by the provinces of Patna and Jessat; on the east by the kingdoms of Tipra and Aracan; on the south by the bay of Bengal; and on the west by the province of Orissa. It is a very plentiful country, and is overflowed by the Ganges as Egypt is by the Nile. The chief towns are Dacca, which is the seat of the viceroy; Cossambar and Hughly, or Hugheli, are towns of good trade on the river; Chatigan, near the eastern branch of the river, is a very large populous city, and has also a very good trade.

Bengal is a very fruitful country, and well watered, not only by the Ganges, but by canals cut out of it. On the banks of these grow pulse, mustard-seed, sesamums, of which they make oil, and little mulberry-trees to feed their silk-worms, which supply them with silk for their manufactures, which are exceeding good, they have likewise aloe, salt-petre, gum-lac, opium, wax, musk, long pepper, ginger, and butter; it sends vast quantities of rice every year to the Moluccas, Sumatra, Malabar, Coromandel, the Maldivia islands, Ceylon, and Goa; as also sugar to Golconda, Carnate, Arabia, Irak Arabi, and Persia; besides muslins, cottons, calicoes, silks called Bengals, elaches, and herba-stuffs, indico, and canes to Europe.

They have almost continual rains in Bengal, from April to September; this

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causes the Ganges to overflow, which does great service, and sometimes a great deal of mischief; during the other six months, the weather is fair and pretty cool, by the blowing of the north-east wind: but in December, January, and February, the mornings are foggy and cold. Their shortest day is eleven hours long, and their harvest is at that time of the year.

They have plenty of fresh and salt fish, fowls, ducks, and geese, which are exceeding cheap; sheep, kids, and pork are the chief food of the Europeans; the food of the common people is pulse, rice, butter, and boiled fish; they use banana-leaves for their napkins, and the ground for their table.

BENZOINE, or *Asa-Dulcis*, in the materia medica, a gum resin, approaching the nearest to storax in fragrance. The tree which produces benzoine is a native of the East-Indies, particularly of the islands Siam and Sumatra. It has soft thin leaves, nearly like those of the citron-tree; and bears a round fruit about the size of a hazel-nut. It is never permitted to exceed the sixth year, as being after this period unfit for yielding resin; the inhabitants then cut it down, and supply it by a young one raised commonly from the fruit. One tree does not yield above three pounds of benzoine. The juice exudes, from incisions, in form of a thick white balsam: if collected as soon as it has grown somewhat solid, it proves internally white like almonds; and hence is called *benzocanygdaloides*: if suffered to lye long exposed to the sun and air, it changes more and more to a brownish, and at last to a quire reddish brown colour. The dealers in this commodity never sell us the fine white benzoine by itself; but mix it with the inferior and fouler kinds, that one may carry off the other: hence, in the very best benzoine of the shops, we meet with pieces of various colours, white, yellowish white, yellow, brownish yellow, brown, reddish brown, and grey, all united into one lump. The dark coloured benzoine however, if it is free from earthy and woody impurities, and from admixtures of any other resin, does not appear to be inferior in goodness to the white. *Newman's Chemistry*. Benzoine and its flowers are employed medicinally for resolving and attenuating viscid juices, particularly in disorders of the breast: but the principal use of this fragrant resin is in perfumes, and as a cosmetic, for softening and smoothing the skin.

BER, in botany, that species of the jugube-tree which produces the gum lacca. See *JUGUBE*. **BERAMS**,

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BERAMS, a coarse cloth, all made of cotton thread, which comes from the East Indies, and particularly from Surat. There are white plain berams, and others striped with colours.

BERBERIS, *Barberry*, in botany, a large prickly bush, under which lies another of a deep yellow; small, smooth, somewhat oval, pale green leaves, finely serrated about the edges; and yellow monopetalous flowers, standing in clusters on the tops upon naked footstalks, followed by oblong red berries, containing each generally two seeds: some of the individuals have no seeds in their berries, and sometimes with and without seeds are found on one bush. It grows wild on chalky hills in several parts of England, flowers in May, and ripens its fruit in September. The fruit of this shrub is a mild astringent acid, acceptable to the stomach, and of great medicinal efficacy in hot bilious disorders and a colliquative or putrid disposition of the humours.

Among us, these berries are commonly made into jelly, by boiling them with an equal weight of fine sugar, over a gentle fire, to a due consistence, and then straining the fluid through a woollen cloth. By drying the berries, their acidity is abated, and their astringency improved.

The leaves of the barberry bush have likewise a hot ungrateful restringent acid taste, and have sometimes been employed in the same intentions as the fruit, and as an ingredient in cooling fallads. The inner yellow bark, in taste austere and bitterish, is said to be gently purgative, and to be serviceable in jaundices. Mr. Ray commends, in this disease, from his own experience, a decoction in ale or other liquors, or rather an infusion in white wine, of the yellow bark both of the branches and the roots. It gives a deep yellow tincture both to watery and spirituous menstrua. *Lewis's History of the Materia Medica.*

BERENICE, in fabulous history, the daughter of Philadelphus and Arsinoe, and the wife of Energetes; she vowed to cut off her hair, if her husband returned victorious, which she did, and sent it to the temple of Venus, on which the hair was changed into a constellation of seven stars.

BERGAMOT, a fragrant essence extracted from a fruit which is produced by ingrafting a branch of lemon-tree upon the stock of a bergamot-pear. It is also the denomination of a coarse tapestry, manufactured with flocks of silk, wool, cotton, hemp, ox, cow, or goat's hair, and sup-

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posed to be invented by the people of Bergamo.

BERG-OP-ZOOM, or **BERGEN-OP-ZOOM**, a town of the Low Countries, in Dutch Brabant, and in the marquisate of the same name. It is seated on an eminence, in the middle of a morass, about a mile and a half from the eastern branch of the Scheld. The church before the last siege, was reckoned a good building, and so was the marquis's palace. It has a very advantageous situation on the confines of Brabant, Holland, Zealand, and Flanders. It is strong by nature as well as by art, being so secured by the morasses about it, which are formed by the river Zoom, that it was reckoned impregnable. It was, however, taken in 1747, by the French, but 'tis imagined not without the help of treachery. The fortifications are allowed to be the master-piece of that great engineer Cohorn. It had been twice besieged before, without success. It is seventeen miles north of Antwerp, and twenty-two south-west of Breda. Long. 4. 15. E. Lat. 51. 30. N.

BERKSHIRE, an inland county in the diocese of Salisbury, bounded on the north and north-east by the Thames, on the west by Gloucestershire and Wiltshire, on the south-east by Surry, and on the south by Hampshire. It is one hundred and twenty miles in circumference, and contains five hundred and twenty-seven thousand acres, and sixteen thousand nine hundred and six houses. The air is sweet, and soil fruitful. It has plenty of corn, cattle, wild-fowl, wool, and timber, especially oak and beech. The rivers are the Thames, Kennet, Ocke, and Loddon. The Kennet is now made navigable by act of parliament. This county sends nine members to parliament, has one hundred and forty parishes, and twelve market towns. Reading, the chief, is thirty-nine miles west of London, and is remarkable for malt, meal, Holland tapes, and canvas or sail-cloth. The rest are Abingdon, Windsor, Wallingford, Maidenhead, Hungerford, Newbury, Farringdon, Wantage, Lower Lambourn, East Ilsey, and Oakingham. The royal palace and castle at Windsor, built by Edward III. are remarkable for their fine situation, rich furniture, paintings, and many other curiosities. In St. George's chapel are held the chapters of the order of the garter, instituted by the above king Edward III. A few miles to the south-east of this town is the figure of a white horse, covering an acre of ground, cut in a hill of chalk, from whence it

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It may be seen at a great distance, and is said to have been made by direction of king Alfred, in memory of a great victory he obtained.

* **BERLIN**, a city of Germany, capital of the electorate of Brandenburg, and where the king of Prussia generally resides. This is one of the largest, best built, and best governed cities of any in Germany. The streets are large, straight, clean, and well paved, and some of them very long and elegant. There are also several large and beautiful squares. It is surrounded with handsome gardens, which produce pulse and excellent fruit. The river Spree, that crosses the city, has a communication with the Havel, Oder, and Elbe, which greatly facilitate commerce. The royal street is crossed by five others, which are large and fine. On the new bridge, which is of stone, over the Spree, is an excellent equestrian statue of William the Great. The elector is represented in a Roman habit, and his horse stands on a pedestal of white marble, adorned with basso relievos, and four slaves bound to the base. After this bridge is past, the king's palace appears, which is a grand and superb edifice; it is four stories high, and the apartments extremely magnificent. No place in the world has such a great quantity of silver tables, stands, lustres, branched candlesticks, screens, looking-glass frames, canopy-beds, chairs, &c. In the knight's hall there is a buffet, which takes up all one side, where there are basins and cisterns of gilt silver, of an extraordinary magnitude. The furniture of the great apartment is extremely rich, and there is a very handsome gallery, adorned with paintings, representing the principal actions of Frederick I. Formerly there were fine gardens to the palace, but they are now turned into a place for arms.

The arsenal consists of four grand buildings, that form a court in the middle, like a college; each front has three large portico's. On the principal gate is a medallion of the late king, in bronze, and the four cardinal virtues, of a colossal stature, placed on pedestals on each side of the portico, seem to look at the portrait of the king, which is supported by Fame and Victory. There are many other things worthy of observation, such as the cabinet of medals, and of the antiquities belonging to the king; that of natural curiosities; the chemical laboratory, and its furnaces and medals, of a new invention; the theatre for anatomical demonstrations; the royal library, which is one of the completest in

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Germany, and has many scarce books and manuscripts. The river Spree falls into the Elbe, and communicates with the Oder by a canal, near Frankfort on the Oder, from which Berlin is forty-five miles north-west, forty-five north-east from Wittenburgh, seventy-five south by-west from Stetin, and three hundred north-by-west from Vienna. Long. 13. 37. E. Lat. 52. 53. N.

* **BERMUDAS**, (the islands of) were discovered by John Bermudas, in 1503; Sir John Sommers was shipwrecked upon them in 1609; hence some called them the Sommer Islands. These islands are numerous; but some are only barren rocks. They lie in a little compass, almost in the form of a shepherd's crook, and contain about twenty thousand acres of ground, surrounded in a manner with rocks, which render them inaccessible to strangers. That called St. George's Island is the largest. It was first planted by Richard Moore, with about sixty persons, in 1612. These built themselves huts, which were converted by degrees into handsome houses, that at length became a town, called St. George. The commodities they traded in were spermaceti, ambergris, and tobacco. While the new colony was increasing, they were infested with rats, which destroyed almost all their provisions, and had like to have brought on a famine; but they found means to destroy them, and saved themselves; inasmuch that there are ten thousand inhabitants, besides slaves, who carry on a good trade in tobacco, the ground producing large crops; but it is not so good as that of our plantations on the continent of America. The country is mostly mountainous, but has some fertile plains. The inhabitants catch the rain water, and preserve it in cisterns, because the water of the island is brackish. Their chief produce is Indian wheat and tobacco; but they have some fruit, particularly oranges. The wood of the cedar-trees is fine, hard, durable, and fragrant. With this they build their houses, ships, and churches. The palmeto bears a delicious fruit, like a damson, and yields wood both for building and fuel; the leaves are eight or ten feet long, and serve to cover houses. What they call a palm or date-tree yields a fine fruit, and there is variety of odoriferous and medicinal woods in their forests. They have great plenty of sea-turtle, which serves for common food, and is excellent eating. Their birds are hawks of all sorts, storks, herons, bitterns,

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Altrernis; ospreys; cormorants; baldcoots; moorhens; teal; snipes; ducks; widgeons; sparrows; wood-peckers; owls; and bats. But it is observable, that though these birds have common English names, yet they differ from ours. The air is serene, and generally healthful; unless in tempestuous seasons. They have no poisonous animals, unless their spiders are such; these are exceeding large, and finely variegated with different colours.

The inhabited parts of these islands are divided into nine districts, called tribes. 1. St. George, 2. Hamilton, 3. Ireland, 4. Devonshire, 5. Pembroke, 6. Pagets, 7. Warwick, 8. Southampton, and 9. Sandys. There are but two places where a ship can come safely near the shore, and these are so well covered with high rocks, that few will care to venture in without a pilot; and they are so well defended by forts, that they have no occasion to dread any enemy. St. George's town is at the bottom of the principal haven, and is defended by nine forts, on which are mounted seventy pieces of cannon, which command the entrance. This town has a handsome church, a fine library, and a noble town-house, where the governor, council, and others assemble. Besides these, there are about a thousand houses, well built. The tribes of Southampton and Devonshire have each a parish church and a library, and the former has a harbour of the same name. There are houses and hamlets all over these islands, where particular plantations require them, among which there are small chapels for divine service. The inhabitants are clothed chiefly with the English manufactures, and all their implements for tilling the ground and building are made here. But what little traffic they have is with the continent of North America, to which they send sloops and trading vessels for sale. Upon the whole, they have little or no prospect of ever growing rich, and therefore it is no wonder that some of the younger sort transport themselves elsewhere. This practice, if continued, will soon decrease the number of the inhabitants, and in process of time greatly impoverish the islands, unless some expedient be found out to employ their hands in some useful and profitable manufacture, or natural production, which will yield them sufficient encouragement. It is six hundred miles east of Carolina, in the latitude of 32. 30. Long. 65. 10. W. Lat. 32. 30. N.

BERNARDIN MONKS, an order of religious, founded by Robert Abbot

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of Molme: they are properly Cistercians, or Monks of Citeaux; but their order having been enlarged and amplified by St. Bernard, they were from thence called Bernardins.

The Bernardin nuns, as well as monks, are habited in white, and subject to the laws of the Cistercians.

BERRY, *Bacca*, a round fruit, for the most part soft, and covered with a thin skin, containing seeds in a pulpy substance.

They are of various sizes, forms, properties, and uses, according to the plants on which they grow. Some are used in dyeing, as French Berries: some grow singly, others in clusters.

BERWICK-UPON-TWEED, a town on the borders of England and Scotland, and a county of itself. It stands on the north or Scotch side of the river Tweed, pleasantly situated on an easy declivity, almost close to the sea, and has a ditch on the north and east, but on the south and west it has high walls, regularly fortified, and planted with cannon, and to which the river serves as a moat. The houses are generally well built; and the town-house is a handsome structure, with a lofty turret, in which are eight bells, and a fine clock, which tells the quarters, with four dials, one on each side the square. The church is a neat building, but has no bells. The bridge is nine hundred and forty-seven feet long, supported by fifteen arches. The town is governed by a mayor, recorder, town-clerk, and four bailiffs, and has a coroner, a treasurer, four serjeants at mace, and a water bailiff. It had a strong castle, now in ruins. It has a market on Saturdays, well supplied, and a fair on Friday in Trinity-week for black cattle and horses. The principal trade here is salmon, which is caught in the Tweed, and reckoned to be as good as any in the kingdom. Some are sent alive, and some pickled in kits by persons who subsist on that employment, who are called salmon coopers. In June and July salmon is sold for a penny a pound. It is eighty miles north-east of Carlisle, and three hundred and thirty-five north-west of London.

BERYL. See *AQUA Marina*.

BESANT, or **BEZANT**, a coin of pure gold, of an uncertain value, struck at Byzantium, in the time of the Christian emperors; whence the gold offered by the king at the altar, is called besant, or bissant.

BETEL,

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BETEL, in botany, an Indian plant, in great use and esteem throughout the East, where it makes a considerable article of commerce. The betel bears some resemblance to the pepper-tree. Its leaves are like those of ivy, only softer, and full of a red juice, which among the orientals is reputed of wonderful virtue for preserving the teeth and rendering the breath sweet. The Indians are continually chewing these leaves, which make their lips so red, and teeth black, a colour by them vastly preferred to the whiteness affected by the Europeans. The consumption of betel leaves is incredible, no person, rich or poor, being without their box of betel, which they present to each other by way of civility, as we do a snuff-box.

* **BETHLEHEM**, a town of Palestine, famous for the birth of Jesus Christ. It was once a flourishing town, but is now only a poor village. It is seated on the ridge of a hill, which runs east and west. Here is a church, built by St. Helena, in the form of a cross, which is very large; from the top of which may be seen all the country round about. The walls were formerly overlaid with fine marble, but the Turks have taken it to adorn their mosques. There is a grot or cell, which they say was a lodging place of St. Jerom, where he translated the Bible. Another entrance leads to a vault or chapel, twelve feet wide and forty long, whose floor is paved, and sides lined with white marble, and the roof is adorned with Mosaic work, now much decayed. At the end of this there is an arched concavity, with an altar, over which is a picture of the nativity, and under it a vault, the middle of which is a star made with stones of various colours, to mark the place where they say our Saviour was born; and near this is the manger where they pretend he was laid; it is hewn out of a rock, and is now flagged with white marble. The few cottages that are yet standing are inhabited by Greeks and Armenians, who get a poor livelihood by selling the model of the sepulchre and grot of the nativity to strangers, cut in wood or stone; as also by attending pilgrims. Bethlehem is about six miles west of Jerusalem. Long. 35. 55. E. Lat. 31. 30. N.

* **BETHLEM HOSPITAL** for lunatics, was founded in 1247.

BETONY, in botany, a plant of very little taste or smell, which has been celebrated for abundance of medicinal virtues,

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but does not promise to have any considerable activity: its principal use is an ingredient in herb snuffs, in compositions for smoking, and, as a substitute to tea. It is observable that the roots of betony differ greatly from the other parts of the plant; they operate both upwards and downwards, and seem to approach to the nature of the roots of hellebore. *Newmann's Chemistry.*

BETULA, the birch-tree, a small tree common in moist woods, with numerous very flexible branches, and somewhat oval, sharp pointed serrated, deep green leaves, hanging on long and weak pedicles; producing small scaly cones, which contain little winged seeds. On deeply wounding or boring the trunk of the birch-tree early in the spring, there issues a very large quantity of a limpid, watery, sweetish juice. It is said, that one tree will bleed a gallon or two in a day; that the juice extracted near the root is much more watery, and of less taste than that obtained from the upper part of the trunk, or from the branches; and that after the leaves have begun to appear, the juice loses its sweetness and becomes disagreeable. This juice has been drank as an antiscorbutic and deobstruent; it sensibly promotes urine, and, if taken freely, loosens the belly. In keeping, it soon turns sour, unless defended from the air by covering its surface with a little oil; by fermentation, it is converted into a weak vinous liquor. Inspissated to the consistence of a thin syrup, and set in a cool place for some weeks, it yields brownish saline concretions, approaching, as Marggraf observes, to the nature of manna. The leaves and the bark of the tree have been employed, chiefly externally, as resolvents, detergents, and antiseptics. Simon Paulli relates, that an universal pruriginous scabies, which had been received by infection, was cured by bathing with a decoction of the bark and young branches, in which some nitre and tartar had been dissolved. The leaves rubbed a little, yield a pretty strong, and not disagreeable smell. This tree is propagated by suckers taken from the roots of old trees, which may be transplanted either in October or February, but October is to be preferred; for if the spring should prove dry, those planted in February will many of them fail; it delights in a poor soil, and will grow either in moist spongy soils, or in stony or gravelly marishes, or bogs: when the young trees have been planted two years, you should, if designed for under-wood,

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wood, cut them down within six inches of the surface, which will cause them to shoot out strong and vigorous branches; but if they are designed for large trees, it will be much better to let them stand three years before you head them down; and when you do it, cut them within three inches of the ground, that their stems may be straight and handsome: but you must observe, when they begin to put out, whether they produce more than one shoot; which if they do, you must cut off all but the strongest and most convenient shoot, which must be trained up for a stem. The timber of this tree, though accounted the worst of all others, is not without its various uses: the turners often use it to make chairs, &c. and the husbandmen for making ox-yokes; it is also planted for hop-poles, hoops, &c. but, in places near London, it is kept often cut to make brooms, and turns to great account.

BEVEL, among masons, carpenters, joiners, and bricklayers, a kind of square, one leg whereof is frequently crooked, according to the sweep of an arch or vault. It is moveable on a centre, and so may be set to an angle. The make and use of this instrument is pretty much the same as those of the common square and mitre, except that those are fixed, the first at an angle of ninety degrees, and the second at forty-five; whereas the bevel being moveable, may in some measure supply the place of both, which it is chiefly intended for, serving to set off or transfer angles, either greater or less than ninety or forty-five degrees.

BEVEL-ANGLE, any other angle besides those of ninety or forty-five degrees.

* **BEVERIDGE**, (**WILLIAM**) bishop of St. Asaph, was born at Barrow, in Leicestershire, in the year 1638, and distinguished himself by his early piety, and integrity of life. After finishing his studies at Cambridge, where he distinguished himself by his skill in the oriental languages, he became successively vicar of Yealing, in Middlesex, rector of St. Peter's Cornhill, London, prebendary of St. Paul's cathedral, archdeacon of Colchester, prebendary of Canterbury, chaplain in ordinary to king William and queen Mary; and, in 1704, was advanced to the bishopric of St. Asaph. This dignity, however, he enjoyed but a short time: for he died at his lodgings in the cloisters in Westminster abbey, March the 5th, 1708, in the seventy

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first year of his age, and his body was interred in St. Paul's Cathedral. He wrote several treatises, many of which are now in great esteem; particularly *Private Thoughts upon Religion*; *The Church Catechism explained*, and an *Exposition of the Thirty-nine Articles*.

* **BEVERLEY**, a town of Yorkshire, which is governed by a mayor, a recorder, twelve aldermen, &c. and sends two members to parliament. The minister is a very fine neat structure, and the roof is an arch of stone; in it are several monuments of the Percies, earls of Northumberland, who had added a little chapel to the choir, in the window whereof there are several pictures of that family painted on glass; at the upper end of the choir, at the right of the altar-place, stands the freed-stool, made of one entire stone, to which whoever fled had a right of protection; at the upper end of the body of the church, next the choir, hangs an ancient table, with the picture of king Athelstone, who founded the church; between them is this inscription,

Als free make I thee,

As heart can wish, or egh can see.

Hence the inhabitants pay no toll in any town or port in England. In the body of the church stands an ancient monument, called the virgin's tomb, because two virgin sisters lie buried there, who gave the town a piece of land, into which any free man may put three milch cows, from Lady-day to Michaelmas; at the lower end of the body of the church is a large font of agate stone.

The liberties contain above a hundred towns and parts of towns in Holderness and other parts of the East-Riding belonging to it. The town is a mile in length, having pleasant springs running quite through it. It is beautified with two stately churches, and has a free-school, with two fellowships, six scholarships, and three exhibitions in St. John's college, Cambridge, belonging to it; besides six alms-houses, where none are admitted but those that give bond to leave their effects to the poor when they die. It has two markets, on Wednesdays and Saturdays; and four fairs, on Thursday before Valentine's-day, Holy-Thurday, July 5, and November 5, for cattle, horses, and sheep. Beverley is one hundred and eighty-one miles from London. Long. 0. 9. E. Lat. 53. 50. N.

* **BEWDLY**, a town in Worcestershire, it has a market on Saturdays. It sends

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sends two members to parliament, and is governed by a bailiff, twelve capital burghesses, a recorder, a steward, a town-clerk, and two sergeants at mace. It is pleasantly seated on the river Severn, and was formerly accounted a very delightful place; for which reason Henry VII. built a house here for prince Arthur, and called it Tiken hall. It is a neat well-built town; it has three fairs, on April 23, for horned cattle, horses, cheese, linen and woollen cloth; on December 10, for hogs only; and on December 11, for horned cattle, horses, cheese, linen and woollen cloth. It is one hundred and twenty-seven miles north-west of London. Long. 2. 20. W. Lat. 52. 25. N.

BEY, among the Turks, a governor of a country or town. Every province in Turkey is divided into seven sangiacs or banners, each of which qualifies a bey, and these are all commanded by the governor of the province, whom they call beglerbeg. Bey of Tunis, the same with the dey of Algiers, is the prince or king of that kingdom.

BEZANS, cotton cloths, which come from Bengal; some are white, and others striped with variety of other colours.

BEZOAR, in natural history and medicine, a general name for certain animal substances, supposed to be effectual in preventing the fatal consequences of poison. Bezoars are stony concretions, formed in many land animals; in the stomach of goats, harts, horses, asses, cows, &c. as well as in the urinary and gall-bladder of the human body. Several of these substances were by the credulity of former times celebrated as medicines of extraordinary virtue, and distinguished by an oriental name, bezoar, which signifies a subduer of poisons, or a lord over poisons; hence bezoardic is become a common appellation for medicines supposed to be possessed of alexipharmic powers. The bezoar of the ape, and that of the porcupine, called *Piedra del perro*, have been valued most; single stones having been sold for sixty and eighty pounds sterling.

There are two sorts of bezoar kept in the shops, distinguished by the epithets oriental and occidental, from the countries where they are produced.

The oriental or best bezoar is found in the stomach of an animal, which is said to bear a resemblance both to the goat and the stag, and said to be met with in different parts of Persia, China, and the East Indies. Those that live upon the

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mountains, and feed on aromatic herbs, are supposed to afford a better bezoar than those that live on the plains and valleys.

The occidental bezoar is said to be found in the stomach of an animal of the same genus with that which affords the oriental. This sort of bezoar is not near so beautiful, so smooth, or so polished as the other: it is commonly of a whitish ash, or dark-grey colour; sometimes brownish or blackish, and sometimes of a greenish yellow. From experiments it appears, that the occidental bezoar is more likely to be an animal production than the oriental, as it yields in distillation some small portion of volatile urinous matter. It is nevertheless much inferior in value, as being less beautiful, and scarcely ever made use of in medicine. If the oriental and occidental bezoars were both genuine, or true animal calculi, they would probably be equal in virtue to one another, though certainly not equal to oyster-shells and other common absorbents. *Neumann's Chemistry.*

BEZOARDIC, whatever partakes of the nature of bezoar; also to compound medicines, where bezoar makes an ingredient.

BIBLE, *Bibler*, *Gr.* the book, a name given by Christians, by way of eminence, to a collection of the sacred writings, containing those of the Old and New Testament, the foundation of the Jewish as well as the Christian religion. The Jews, it is true, acknowledge only the Scriptures of the Old Testament, the correcting and publishing of which is unanimously ascribed both by the Jews and Christians to Ezra. After the return of the Jews from the Babylonish captivity, Ezra got together as many copies as he could of the sacred writings, and out of them all prepared a correct edition, disposing the several books in their natural order, and settling the canon of the Scripture for his time, having published them, according to the opinion of most learned men, in the Chaldee characters, as the Jews upon their return from their captivity, brought with them the Chaldaic language, which from that time became their mother-tongue, and probably gave birth to the Chaldee translation of their Scriptures.

Hebrew BIBLE. There is in the church of St. Dominic, in Bononia, a copy of the Hebrew scriptures, which they pretend to be the original copy, written by Ezra himself. It is written in a fair character, upon a sort of leather, and

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made up into a roll, after the ancient manner: but its having the vowel points annexed, and the writing being fresh and fair, without any decay, these circumstances prove the novelty of the copy.

It is beyond dispute that the Latin churches had, even in the first ages, a translation of the Bible in their language, which being the vulgar language, and consequently understood by every body, occasioned a vast number of Latin versions. Among these there was one which was generally received, and called by St. Jerom, the vulgar or common translation. St. Austin gives this version the name of the *Italic*, and prefers it to all the rest. There were several other translations of the Bible into Latin, the most remarkable of which are the versions of St. Jerom, Santes Pagninus, cardinal Calesan, and Isidore Clarinus, all from the Hebrew text. Besides these translations from Catholic authors, there are some made by protestant translators of the Hebrew; the most eminent of which are the versions of Sebastian Munster, Leo Juda, Sebastian Castellio, Theodore Beza, &c. The Bible has also been translated into most of the modern European languages, particularly the English.

English BIBLE. The first version of any part of the Scriptures into the language of our own country, was that of Adelin, bishop of Sherburn, who flourished in the year 709. That prelate made an English-Saxon version of the Psalms. About the year 730, Eadfrid, or Ecbert, bishop of Lindisferne, translated several of the sacred books into the same language. Venerable Bede, who died in 735, is also said to have translated the whole Bible into Saxon; but Cuthbert, Bede's disciple, in enumerating the works of his master, mentions only his version of the gospel of St. John, without saying any thing of the other books. Elfric, abbot of Malmibury, made an Anglo-Saxon version of several books of the Bible: this work was afterwards printed at Oxford, in 1699. There is also an old Anglo-Saxon version of the four gospels published by Matthew Parker, archbishop of Canterbury, in 1571: but the author of it is not known. Dr. Mill observes that this version was taken from a Latin copy of the old Vulgate. With regard to the English translations of the Bible, the most ancient is that of John de Trevisa, a secular priest, who translated the Old and New Testament into English, at the request of Thomas lord Berkley: he lived in the reign of Richard the Second, and finished his translation in 1357.

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The second author who undertook this work was the famous Wickliff, who lived in the reigns of Edward the Third and Richard the Second. Manuscripts of this version are still preserved in several libraries in England. In the year 1534, an English version of the Bible, done partly by William Tindal, and partly by Miles Coverdale, was brought into England from Antwerp. But the bishops finding great fault with this version, a motion was made and carried in convocation, for making a new translation of the scriptures, to be placed in all the churches. The translation was accordingly begun immediately, and the whole impression finished in three years. Fuller mentions another translation of the Bible, printed in the year 1549. In the reign of Queen Elizabeth, the *Bishops Bible* appeared; so called, because several prelates were concerned in that version. In the second year of James I. a resolution was taken, at a conference held at Hampton Court, for a new translation of the Bible; which design was executed by forty-seven translators, in the year 1607. And this translation is now read by authority in all the English churches.

BIBLIOTHECA, in its original and proper sense, denotes a library or place for depositing books.

BIBLIOTHECA, in matters of literature, denotes a treatise giving an account of all the writers on a certain subject. Thus, we have bibliothecas of theology, law, philosophy, &c. There are likewise universal bibliothecas, which treat indifferently of all kinds of books; also select bibliothecas, which give an account of none but authors of reputation. Many of the bibliothecas agree, in most respects, with what are otherwise called memoirs or journals of literature, except that these last are confined to new books; but there are other bibliothecas that differ in nothing from catalogues of the writers on certain subjects.

BICE, or **BISE**, among painters, a blue colour prepared from the lapis armenus. Next to ultramarine, which is too dear to be used in common work, it lies best near the eye of all other blues.

BICEPS, in anatomy, the name of several muscles: as the

BICEPS-HUMERI, or **CUBITI**. This is a muscle of the arm, and has two heads: the first of which arises, with a long, round tendon, from the upper edge of the acetabulum scapulae, running under the ligament of the articulation, in a channel, on the head of the shoulder-bone, wherein

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wherein it is inclosed by a proper ligament: the other arises from a somewhat broad, flat, and long tendon, at the extremity of the process coracoides scapulae; in its descent it strictly adheres to the coracobrachialis, and parting from it, both these heads compose a large fleshy belly, which, becoming tendinous near the cubit, is inserted by a strong round tendon to the tubercle, at the upper head of the radius. When this muscle acts, the cubit is bended.

BICEPS TIBIÆ, or FEMORIS, a muscle of the leg with two heads; the superior arising with a round tendon from the protuberance of the ischium; and the other, being the shortest, from the lower part of the os femoris; both which join together, and are inserted by one tendon into the superior and external part of the perone. Besides the office commonly assigned to this muscle, in bending the tibia, together with the sartorius and membranosus, it is likewise employed in turning the leg, together with the foot and toes, outwards, when we sit with the knees bended.

* **BIDDIFORD,** a market-town in Devonshire, on the side of two hills, between which a fine river runs. There is a bridge over the river, through the arch of which ships of great burthen may pass, without their masts; at low-water there remains a channel sufficient for pleasure boats. The town is well built, particularly a new street fronting the quay, which is bridge-land. The quay itself is in the body of the town, and so commodious, that ships of two hundred tons may lay their sides to it and unload without the use of a lighter. It is a place of considerable trade. Great quantities of potters ware are made here, and exported to Bristol, Wales, and Ireland. The town is governed by a mayor, alderman, a recorder, capital burghesses, serjeants, &c. and has a particular court, in which actions for debt are brought in any case, and for any sum. There is a market three days in a week, Tuesdays, Thursdays, and Saturdays. The number of houses is about five hundred. The church is large, and the greatest part new built, and yet it will but just contain the auditory. It has an organ, and a good ring of bells, which the nearness of the water renders very musical. There are two dissenting meeting-houses, frequented by about a fourth part of the inhabitants; and a grammar-school, endowed with about twenty pounds a year. The distance from London is two hundred and three miles.

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BIGAMY, the possession of two wives at the same time, by stat. 1. Jac. I. which makes bigamy felony. Among the Romans persons convicted of bigamy were branded with a note of infamy; and in France formerly they were punished with death.

Spiritual BIGAMY, is when a person holds two incompatible benefices, as two bishoprics, two vicarages, &c.

BIGNONIA, the trumpet-flower, in botany. There are no medicinal virtues ascribed to this plant.

* **BIGOT,** one foolishly obstinate and perversely wedded to any opinion, but particularly an opinion of a religious nature.

BILANDER, in the sea language, a vessel of two masts, not very common; the mainsail of which, instead of stretching across on a parallel yard like that of a ship, is extended fore and aft, or along the ship.

BILE, BILIS, a yellow bitter liquor, separated from the blood of the liver, collected in the porus biliaris and gall-bladder, and thence discharged by the common duct into the duodenum.

The usefulness and necessity of the bile, for the preservation of life and health, are sufficiently known to every one who is acquainted with the rational and solid principles of physic. It is well known to physicians and anatomists, that the principal, if not the only office of the liver, is, by a beautiful mechanism, to filtrate and strain that active, saline, and sulphureous humour, called the bile, from the blood through the trunk of the vena porta, the hepatic artery, and its glandulous kernels. It must be owned, anatomists are not agreed among themselves whence the gall-bladder, adhering to the liver, is supplied with the bile it receives; for some of them are of opinion, that the tunica glandulosa separates from the blood conveyed thither by the cystic arteries: others again maintain, that there are some very minute ducts inserted in the bottom of the gall-bladder, by means of which the bile is conveyed to it; and another class of anatomists venture to affirm, that there are certain cysti-hepatic ducts, by means of which the bile is immediately conveyed to the receptacles. The bile in the gall-bladder differs very considerably from that in the liver; for the former is thicker, more acrid, more bitter, and of a deeper colour than the latter, which is more fluid, more diluted, and less bitter. Though the bile, in consequence of the ingredients of which it is composed, is a humour disagreeable both to the solid and fluid parts of

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of the human body, and in this sense excrementitious; yet, with regard to the elaboration of the chyle, it is highly useful and necessary, and consequently ought not to be discharged from the body, till it has exerted itself to that purpose.

From a great number of experiments made on this fluid by Baglivi, Du Hamel, &c. it plainly appears, that the bile is a humour composed of an oil, a salt, and water. It may therefore be considered as a liquid animal sope, so that it is of an abstergent and resolvent quality. That it is so, the practice of some tradesmen is a sufficient proof; for dyers of cloth, in order to take out the grease which sticks to the wool, and hinders the adhesion of the colour, use sope, or putrid urine, after it has assumed an alkaline nature, or a lixivium of some fixed alkali: but they may, with equal success, use ox-gall for the same intention. Painters also use the bile of animals for mixing and diluting their colours. It discovers its efficacy to be the same in medicines, where a saponaceous quality is required, or where the intention is to absterge, where the sluggish vessels are to be stimulated, where a tenacious substance is to be resolved, or a viscid one attenuated. See *Boerb. App. LXXV. 5.*

Besides, as bile has for an ingredient a salt, which, though not an alkali, yet approaches to it like other animal salts, it must of course prove an efficacious medicine in those disorders where an acid is to be resisted and corrected: so that it must be beneficial to bodies which are prone to generate acids, to such as abound with mucous and pituitous humours, and to those who lead a sedentary life, or labour under loss of appetite. It is also added to purgative medicines, with a view to lubricate, stimulate, and resolve. The method of using it is to dry it a little, and make it up into small pills: three or four grains may be given for a dose to adults; but, for infants, one grain of it is sufficient for a dose. It seems to be owing to this saponaceous resolvent quality, that a few drops of the bile extracted from a living dog, mixed with the aqua epileptica of Langius, produce the desired effect in the cure of the epilepsy. See *Art. Hoffm. Vol. III. Obs. 20.*

From these circumstances we are enabled to discover the reason why Boerhaave recommended the use of bile, not only against spontaneous gluten, or viscid humours in general; but more especially prescribed it against the coagulums formed in the primæ viæ of children.

BILGE, in naval architecture, the space

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of a ship's bottom comprehended between the keel and the part whereon she would rest when laid aground.

BILINGIUS, in a general sense, implies a person who speaks two languages; but in law it is used to signify a jury in a trial between an Englishman and a foreigner, when one half are natives, and the other strangers.

BILIOUS, relating to the bile, or partaking of its nature.

BILIOUS Fever. See **FEVER**.

BILL, in mechanics, a cutting instrument of iron, used by husbandmen, gardeners, &c.

BILL, in trade, an account of goods delivered to, or of work done for a person.

BILL of Credit, an order given by a merchant or banker to a person, empowering him to receive money from his correspondents in foreign countries.

BILL of Entry, an account of goods entered at the custom-house, both inwards and outwards.

BILL of Exchange, a short order written on a slip of paper, by a merchant, &c. for paying to such a person, or his order, or to the bearer, in a distant place, a certain sum of money.

There are three things necessary to constitute a bill of exchange. 1. That it be drawn in one place upon some person in another. 2. That there be three persons concerned, the drawer, the presenter, or person in whose favour it is drawn, and the acceptor, or him on whom it is drawn. It must also mention that the value which the drawer has received, is either in bills of exchange, in money, merchandize, or other effects, which are to be expressed. These bills are made payable either at sight, or so many days, weeks, or months after date; the space of a month being called usance, and two or three months after date, double or treble usance.

Bills of exchange are also either inland or foreign; the former is said to be only in the nature of a letter; but the latter is more regarded in law, because it is for the advantage of commerce with other countries, and consequently renders it an object of public concern. Not only the drawer, but also every indorser of a bill is liable to the payment of it; for an indorser charges himself in the same manner, as if he had originally drawn the bill: and the plaintiff, in an action in such a case, is not obliged to prove the drawer's hand, because the indorser becomes a new drawer. He must however prove that he demanded the money of the drawer or drawers, or that

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that he made enquiry, and could not find them in convenient time; for by the custom established among merchants, the indorser is to receive the money of the first drawer if he can; but if he cannot, the indorser must answer it. The forging of a bill of exchange, or any acceptance, is felony, without benefit of clergy.

BILL of Lading, an acknowledgment signed by the master of the ship, and given to a merchant, &c. containing an account of the goods which the master has received on board from that merchant, &c. with a promise to deliver them at the intended place for a certain sum of money. Each bill of lading must be treble, one for the merchant who ships the goods, another to be sent to the person to whom they are consigned, and the third to remain in the hands of the master of the ship. It must however be observed, that a bill of lading is only used when the goods sent on board a ship are but part of the cargo; for when a merchant loads a vessel entirely on his own account, the deed passed between him and the master of the ship is called charter-party. See **CHARTER-PARTY**.

BILL of Parcels, an account given by the seller to the buyer, containing the particulars of the goods bought.

BILL of Sale, a security to the lender of a sum of money, empowering him to sell the goods, in case the sum borrowed is not repaid with interest at the time appointed.

BILL of Store, a licence granted at the custom-house to merchants, by which they have liberty to carry duty-free all such stores and provisions as the ship's crew may have occasion for during the voyage.

BILL of Sufferance, a licence granted to a merchant at the custom-house, suffering him to trade from one English sea-port to another, without paying custom.

BILL, in law, a security for money under the hand, and sometimes the seal of the debtor. It is of two sorts, a single bill without or with a penalty; the latter is the same as a bond, except its being without a condition.

BILL, a declaration in writing, expressing either some wrong the complainant has suffered from the defendant, or a fault committed by the person complained of against some law or statute.

This bill is sometimes exhibited to justices at the general assizes, by way of indictment, or referred to others having jurisdiction; but is more generally addressed to the lord chancellor. It contains the fact complained of, the damage sustained, and

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a petition or process against the defendant for redress; and is used both in criminal and civil cases. In the former, the words *billa vera* are indorsed by the grand jury upon a presentment, implying that they find the same founded on probable evidence, and therefore worthy of further consideration.

BILL in Parliament, a paper containing propositions offered to the house to be passed by them, and afterwards to be presented to the king in order to receive the royal assent, and become a law.

BILL of Attainder. See **ATTAINER**.

BILL of Appeal. See **APPEAL**.

BILL of Mortality. See **MORTALITY**.

BILLET-WOOD, small wood for fuel, cut three foot and four inches long, and seven inches and a half in compass; the assize of which is to be enquired of by justices.

BILLETING, the quartering of soldiers in the houses of a town or village. Among fox-hunters, it signifies the ordure and dung of a fox.

BIND-WEED, *Convolvulus*, in botany. See **CONVOLVULUS**.

BING, in the alum works, denotes a heap of alum thrown together in order to drain.

BINNACLE, in naval affairs, a wooden case standing immediately before the helm on deck, and containing three divisions, with a sliding shutter to each; the middle of which is for a lamp or candle, and the two side ones for the sea-compasses, by which the course is steered: there are always two on the quarter-deck of a ship of war, one being for the helmsman, and the other for the officer who conns or directs him.

BINOMIAL Root, in algebra, is a root consisting of two parts of members connected with a sign +: thus $x + y$ is a binomial root, consisting of the sum of those two quantities.

BINOMIAL Theorem, a general method for raising a given quantity to any given power, or extracting any given root thereof, invented by Sir Isaac Newton, and is of the following form:

$$P + PQ^n = P \frac{m}{n} + \frac{m}{n} A Q + \frac{m-n}{2n} B Q \\ + \frac{m-2n}{4n} C Q + \frac{m-3n}{4n} D Q + \&c.$$

Where $P + PQ$ is the quantity whose root or any dimension, is to be found; that is expressed by an infinite series; P is the first term of that quantity; Q the remaining

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remaining terms divided by the first;

$\frac{m}{n}$ the index or exponent of the dimension $P + P Q$. Moreover, A, B, C, D, &c. are used for the terms found in the

quotient, viz. A for the first term $P \frac{m}{n}$;

B for the second $\frac{m}{n} A Q$; and so on.

The following examples will shew this excellent theorems's use.

Examp. 1. $a + x$ is equal to $a^5 + 5a^4x + 10a^3x^2 + 10a^2x^3 + 5ax^4 + x^5$:

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for in this case, $P = a$, $Q = \frac{x}{a}$, $m = 5$,

$n = 1$, $A = a^5$, $B = 5a^4x$, $C = 10a^3x^2$, $D = 10a^2x^3$, $E = 5ax^4$, $F = x^5$, and $G = 0$.

Examp. 2. $\sqrt{aa + xx}$ or $\frac{aa + xx}{\sqrt{aa + xx}}$ is

equal to $a + \frac{xx}{2a} - \frac{x^4}{8a^3} + \frac{x^6}{16a^5} - \frac{5x^8}{128a^7}$, &c.

In the Philosophical Transactions, No. 230, Mr. de Moivre has given us the following theorem for raising an infinite series to a given power m , or extracting the root

thereof, viz. $\frac{ax + bz^2 + cz^3 + dz^4 + ez^5 + fz^6, \&c.}{z^m}$

will be $= a^m z^m + \frac{m}{1} a^{m-1} bz^{m+1}$

$$\left. \begin{aligned} &+ \frac{m}{1} \times \frac{m-1}{2} a^{m-2} b^2 \\ &+ \frac{m}{1} a^{m-1} c \end{aligned} \right\} z^{m+2} + \left. \begin{aligned} &+ \frac{m}{1} \times \frac{m-2}{2} \times \frac{m-3}{3} a^{m-3} b^3 \\ &+ \frac{m}{1} \times \frac{m-1}{2} a^{m-2} b c \\ &+ \frac{m}{1} a^{m-1} d \end{aligned} \right\} z^{m+3}$$

$$\left. \begin{aligned} &+ \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} a^{m-4} b^4 \\ &+ \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} a^{m-3} b^2 c \\ &+ \frac{m}{1} \times \frac{m-1}{2} a^{m-2} b d \\ &+ \frac{m}{1} \times \frac{m-1}{2} a^{m-2} c^2 \\ &+ \frac{m}{1} a^{m-1} e \end{aligned} \right\} z^{m+4}$$

$$\left. \begin{aligned} &+ \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} \times \frac{m-4}{5} a^{m-5} b^5 \\ &+ \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} a^{m-4} b^3 c \\ &+ \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} a^{m-3} b^2 d \\ &+ \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} a^{m-3} b c^2 \\ &+ \frac{m}{1} \times \frac{m-1}{2} a^{m-2} b e \\ &+ \frac{m}{1} \times \frac{m-1}{2} a^{m-2} c d \\ &+ \frac{m}{1} a^{m-1} f \end{aligned} \right\} z^{m+5}$$

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$$\begin{aligned}
 & \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} \times \frac{m-4}{5} \times \frac{m-5}{6} a^{m-6} b^6 \\
 & \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} a^{m-5} b^4 c^2 \\
 & \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} a^{m-4} b^3 c^3 \\
 & \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} a^{m-4} b^2 c^4 \\
 & \frac{m}{1} \times \frac{m-1}{2} a^{m-3} b^2 c^5 \\
 & \frac{m}{1} \times \frac{m-1}{2} a^{m-3} b c^6 \\
 & \frac{m}{1} \times \frac{m-1}{2} a^{m-3} b^2 f \\
 & \frac{m}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} a^{m-3} c^3 \\
 & \frac{m}{1} \times \frac{m-1}{2} a^{m-2} c c \\
 & \frac{m}{1} \times \frac{m-1}{2} a^{m-2} a^2 \\
 & \frac{m}{1} a^{m-1} g
 \end{aligned}$$

For understanding of which, it is only necessary to consider all the terms by which the same power of z is multiplied: in order to which, two things in each of these terms must be considered: 1°. The product of certain powers of the given quantities or coefficients a, b, c, d , &c. and 2°. The uncite or products of $\frac{m}{1} \times \frac{m-1}{2}$, &c. prefixed to them.

Now to find all the products belonging to the same power of z ; for example, to find that product whose index is $m+r$ (r being any whole number) the said products must be distinguished into several classes: those which immediately after some certain power of a , (by which all these products begin) have b , are products of the first class; as $a^{m-4} b^3 c$ is a product of the first class, because b immediately follows a^{m-4} : those which immediately after some power of a have c , are products of the second class; so $a^{m-3} c^2 d$ is a product of the second class: those which immediately after some power of a have d , are products of the third class, and so of the rest.

Ths being understood, 1°. Multiply all the products belonging to z^{m+r-1} (which immediately precedes z^{m+r}) by b , and

divide them all by a . 2°. Multiply by c , and divide by a , all the products belonging to z^{m+r-2} except those of the first class. 3°. Multiply by d , and divide by a , all the products belonging to z^{m+r-3} except those of the first and second class. 4°. Multiply by e , and divide by a , all the terms belonging to z^{m+r-4} , except those of the first, second, and third class; and so on, till you meet twice with the same term. Lastly, add the product of a^{m-r} into the letter whose exponent is $r+1$ to all those terms.

Note. The exponent of a letter is the number expressing what place that letter has in the alphabet, as 3 is the exponent of the letter c .

By this rule it is manifest that it is easy to find all the products belonging to the several powers of z , if you have but the product belonging to z^m , viz. a^m .

Now, to find the uncite prefixed to every product, you must consider the sum of the units contained in the exponents of the letters that compose it; (the index of a excepted) when write as many terms of

the series $m \times m-1 \times m-2 \times m-3$, &c. as there are units in the sum of the indexes: this series is to be the sum of the numerator of a fraction, whose denominator

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is the product of the several series $1 \times 2 \times 3 \times 4 \times 5$, &c. $1 \times 2 \times 3 \times 4 \times 5$, &c. $1 \times 2 \times 3 \times 4 \times 5 \times 6$, &c. the first of which contains as many terms as there are units in the index of b ; the second as many as there are units in the index of c ; the third as many as there are units in the index of d , &c.

The demonstration of this see in the before recited Transaction.

BIOGRAPHY, a very instructive species of history, containing the lives of remarkable persons. A science with which we have enriched this dictionary of arts and sciences.

BIQUADRATIC, the fourth power of any number or quantity.

BIQUADRATIC EQUATION, in algebra; an equation where the unknown quantity has four dimensions. Thus $x^4 + ax^3 + bx^2 + cx + d = 0$, is a biquadratic equation, because the term x^4 is of four dimensions. See EQUATION.

BIQUINTILE, an aspect of the planets, when they are 144 degrees distant from each other.

BIRCH-TREE. See BETULA.

BIRD, *Avis*, in zoology, one of the six general classes of animals, the characters of which are, that their body is covered with feathers, that they have two wings, two legs, and a bill of a horny substance; the females likewise are all oviparous. The knowledge of birds, of the orders and genera into which they are subdivided, and of their natures, uses, figures, &c. constitutes a particular science, under the name of ornithology. Birds have been usually divided into terrestrial and aquatic, or land and water birds; but this subdivision is too general, as well as indeterminate; a much more certain distinction of birds is founded on different shapes and structure of their beaks, from which alone they are naturally arranged under the six following orders: 1. The *accipitres*, or those which have the beak uncinated, or hooked. 2. The *picae*, or those with convex and compressed beaks. 3. The *anseræ*, or those with dentated or serrated beaks. 4. The *scelopaces*, or those furnished with subcylindric and obtuse beaks. 5. The *gallinæ*, comprehending such birds as have the beak of a conic form, but crooked, and the upper chap imbricated. 6. The *passeræ*, or those with conic and attenuated beaks.

We meet with several other distinctions of birds, taken from their manner of feeding; as carnivorous ones, or birds of

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prey; frugivorous and granivorous birds, or such as feed on fruits, and the seed of various plants; insectivorous birds, or those which feed principally on insects; and so in other cases.

BIRDS, in heraldry, represent either the contemplative or active life, according as the different kinds are used. They are the emblems of liberty, expedition, readiness, swiftness and fear. They are more honourable bearings than fishes, because they participate more of the air and fire, the two noblest elements, and at the same time, higher than those of earth and water.

Birds should be borne in coat armour in a manner suitable to their actions, as going, sitting, standing, flying, &c.

Birds that are either whole footed, or have their feet divided, and yet have no talons, are said to be membered; but the cock, and all birds of prey with sharp and hooked beaks and talons for encounter or defence, are termed armed. In the blazoning of birds, if their wings be not displayed, they are said to be borne close; as, he beareth an eagle, &c. close.

BIRD-LIME, a viscid substance, prepared after different ways. The most common bird-lime among us is made from holly-bark, boiled ten or twelve hours; when the green coat being separated from the bark, it is covered up a fortnight in a moist place, then pounded into a tough paste, so that no fibres of the wood are discernable, and washed in a running stream till no motes appear, put up to ferment four or five days, skimmed as often as any thing arises, and laid up for use. To use it, a third part of nut oil, or thin grease, must be incorporated with it over the fire.

* **BIRMINGHAM**, a very large and populous town in Warwickshire, is pleasantly situated on the side of a hill, forming nearly a half-moon. It is about two miles in length, (including the hamlet of Deritend and Bordesley) nearly the same in breadth, and about six miles in circumference; and contains by computation about fifty thousand inhabitants, most of whom are employed in the trade of iron and steel work, Bath-metal toys, and many other useful branches, for which they are such ingenious artificers, that their performances are admired, not only at home, but in foreign parts, where they are held in high estimation, and for their excellence, exquisite workmanship, and extreme cheapness, cannot be surpassed, perhaps not equalled, in any part of

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of the known world; of which there cannot be a greater proof than in the frequent honours conferred on this place by the visits of several royal and noble personages, drawn hither by curiosity, to view the beauties of its flourishing manufactories. In the session of 1773, an act passed for the establishing an Assay Office in this town; which has extended the manufacture of plate to a great degree.

Such a spirit of industry reigns amongst all ranks of people here, that every individual contributes to the execution of some of the useful or ornamental mechanic arts; of which such an infinite variety are here carried on; the women, and even children, earning their livelihood, by assisting in the fabrication of toys, trinkets, &c. &c. Nor is the education of the rising generation in the use of letters hereby left unattended to, evening-schools being kept in every part of the town; to which the little artists resort, for the instruction of their tender minds; after they have performed their bodily labour. The houses in this town fall little short of eight thousand, (besides a great number of work-shops, ware-houses, &c.) and are continually encreasing. They are in general handsome brick buildings; and the dwellings of the gentry, merchants, and capital traders, are very elegant mansions. Here are two churches; one called St. Martin's, and the other St. Philip's; the former is an ancient building, with a lofty spire, and twelve good bells; the latter a grand modern structure, having a fine tower, with ten bells, and a handsome cupola above it, and stands in one of the finest church-yards in Europe, encompassed round with a wall, and laid out with several pleasant walks, for contemplation and amusement: in each steeple is a set of musical chimes, which play every three hours, and a different tune every day in the week. Besides these, there is a chapel of ease, called St. Bartholomew's chapel; and an act of parliament has been lately obtained for building two other chapels, one of which is nearly finished. There are likewise two meeting-houses for Presbyterians, one of which is a new and very handsome fabric; one for quakers; and three for other dissenters.—Here are also three free-schools, one of which, situate in New-street, is a noble structure, founded by king Edward VI. (whose effigy is placed in a niche over the entrance) in which about 130 chil-

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dren are educated in Latin, English, writing, and arithmetic, under the tuition of two masters and an assistant for the first class, an English master, and a writing master; and to these a French master has been lately added, to instruct the young students in that polite branch of literature. The second school (situate in St. Philip's church-yard) was founded in the year 1724: it is supported by the munificence and voluntary contributions of the well-disposed inhabitants of the town, together with divers legacies that are bequeathed to it. In this school 50 boys and 30 girls are wholly maintained and educated; they are admitted from seven to ten years old; and when fourteen, are put apprentices to trades or services: the boys are instructed in English, writing, and accounts, as are likewise the girls, with the addition of needle-work. The third (situate in Old Meeting-street) is a late institution, supported chiefly by a voluntary subscription among the Protestant dissenters, in which 27 children are maintained, clothed, and educated; and apprenticed out at proper ages. There is a weekly market here on Thursdays, which is plentifully supplied from the country with every article of provisions, and well stored with live cattle of all kinds; and two fairs yearly, on the Thursday in Whitsun-week, and on the 29th of September, for hardware, black cattle, horses, sheep, hogs, &c. Being no corporation town, it is governed by two bailiffs, two constables, and a headborough, and is free for any person to come and settle in; which perhaps not a little contributes to the increase of its trade; building, and inhabitants.

It would be unpardonable not to mention the grand-navigable cut that was begun in April, 1768, and completed in November, 1769, to the collieries at Wednesbury, from whence the inhabitants here are supplied with exceeding good coals, at a moderate expence, which before were sold at an exorbitant rate, to the great distress and detriment of the poor: it was, in 1772, extended to Autherly, from whence a communication is opened through the Severn to Shrewsbury, Gloucester, and Bristol; and through the Trent to Gainborough and Hull; from which places goods are brought by water, at a much less rate than the former cost of land-carriage; and many hands are now employed in extending the communication to Liverpool, through

the Meuse. These, however, are not the only advantages reaped from this truly useful work: the inhabitants of this town, as well as those of the country through which the navigation runs, being accommodated with most agreeable walks, for many miles together, along the canal's delightful banks. It is nineteen miles north-west of Coventry, forty-three south-east of Shrewsbury, and one hundred and ten north-west of London. Long. λ . 35 W. Lat. ϕ . 52. 30. N.

BIRTH, *Partus*, in midwifery. See DELIVERY.

An immature birth, or that which happens before the usual time on pregnancy is completed, is otherwise called an abortion. See ABORTION.

BIRTH, in navigation, the situation in which a ship rides at anchor, or the distance between a ship and any adjacent object. Birth also signifies the apartment in which any number of the officers or crew eat and sleep: in a ship of war there is commonly one of these between every two guns.

BIRTHWORT, in botany, a plant. Three sorts of which are kept in the shops, distinguished by the epithets *round*, *long*, and *creeping*, from the different forms of the roots, the only parts used in medicine. In taste they are all bitter and astringent, but in different degrees: the long is much the weakest, and the slender-rooted fort the strongest. Hence they differ also in medicinal virtue. Simon Pauli observes particularly of the long-rooted, that a decoction of it in the distilled waters of veronica is of excellent service against ulcerations on the shin-bone, and says he has received the thanks of many surgeons for the communication of this medicine.

BISHOP, a prelate, or person consecrated for the spiritual government of a diocese.

A bishop is the highest ecclesiastical dignitary, the chief officer in the hierarchy or economy of church government.

Anciently there appears to have been but one bishop in a church; the titles of which supreme officer are reckoned up by Cyprian, and are, bishop, president, pastor, governor, superintendant, and priest. And as there was but one bishop to a church, so there was but one church to a bishop, as appears from hence, that the ancient dioceses are never said to contain churches in the plural, but only a church in the singular: for authors speak of the church of Corinth, the church of Smyr-

na, the church of Philadelphia, the church of Antioch, &c. The word diocese, by which a bishop's flock is now usually expressed, is never used in that sense by the writers of the three first centuries; but the bishop's cure is frequently denoted by the Greek word *Parakia*, parish: as appears from the synodical Epistle of Irenaeus to pope Victor, and from numberless places of Eusebius's Ecclesiastical History. The peculiar acts of the episcopal function were, preaching the word, praying with his people, administering the two sacraments of baptism and the eucharist, taking care of the poor, ordaining of ministers, governing his flock, excommunicating offenders, and absolving of penitents.

The earliest account we have of English bishops is carried up no higher than the council of Arles, assembled by the emperor Constantine, in the fourth century: at which were present the bishops of London, York, and Caerleon. Before the Norman Conquest, bishops were chosen by the chapters, whether monks or prebendaries. From the Conqueror's time to the reign of king John, it was the custom to choose bishops, at a public meeting of the bishops and barons, the king himself being present at the solemnity, who claimed a right of investing the bishops, by delivering to them the ring and pastoral staff. It is true, the popes endeavoured to gain the election of bishops to themselves; and this occasioned great struggles and contests between the Roman pontiffs and our kings. At length, after various disputes between king John and the pope, the former, by his charter, A. D. 1215, granted the right of election to the cathedral churches. A statute in the reign of Henry VIII. settled the election of bishops as follows: "The king, upon the vacancy of the see, was to send his *compte d'elire* to the dean and chapter, or prior and convent, and in case they delayed the election above twelve days, the crown was empowered to nominate the person by letters patent. And after the bishop thus elected had taken an oath of fealty to the king, his majesty, by his letters patent under the broad seal, signified the election to the archbishop, with orders to confirm it, and consecrate the elect. And lastly, if the persons assigned to elect and consecrate deferred the performing their respective offices twenty days, they were to incur a *premunire*." But a statute of Edward

Edward VI. made a change in the manner of electing bishops, and transferred the choice wholly from the deans and chapters to the crown.

By the statute it is enacted, that "For the future no *conge d'elire* shall be granted, nor any election be made by the dean and chapter, but that the archbishopric or bishopric shall be conferred by the king's nomination in his letters patent." But this alteration made by the statute of king Edward is no longer in force; and the custom of sending down the *conge d'elire* or leave to elect, is restored.

Upon the vacancy of a bishop's see, the king grants a licence, or *conge d'elire*, under the great seal, to the dean and chapter, to elect the person whom by his letters missive he hath appointed; and they are to choose no other. The dean and chapter having made their election accordingly, certify it under their common seal to the king, and to the archbishop of the province, and to the bishop thus elected: then the king gives his royal assent, under the great seal, directed to the archbishop, commanding him to confirm and consecrate the bishop thus elected. The archbishop then subscribes his *fiat confirmatio*, and grants a commission to the vicar-general to perform all the acts requisite thereto: who thereupon issues out a summons to all persons who may object to the election, to appear, &c. which citation is affixed on the door of Bow-church. At the time and place appointed, the proctor for the dean and chapter exhibits the royal assent, and the commission of the archbishop, which are both read, and accepted by the vicar-general. Then the new bishop is presented by the proctor of the vicar-general; and three proclamations being made for the opposers of the election to appear, and none appearing, the vicar-general confirms and ratifies the choice of the person elected; who takes the oaths of supremacy, canonical obedience, and that against simony. Till this act of confirmation is performed the bishop elect may be rejected, because there may be reasons assigned why he should not be made a bishop; which is the reason of the abovementioned citations and proclamations.

After confirmation, the next thing to be done is consecration; which the archbishop performs by the imposition of hands and prayer, according to the form laid down in the Common-prayer-book; which done, the bishop is complete, as

well in relation to spiritualities as temporalities.

A bishop of England is a peer of the realm, and sits and votes in the house of lords. He is a baron in a threefold manner, viz. feudal, in regard to the temporalities annexed to his bishopric; by writ, as being summoned by writ to parliament; and by patent and creation. Accordingly he has the precedence of all other barons, and votes both as baron and bishop. But though their peerage was never denied, it has been contested whether the bishop has a right to vote in criminal matters. At the trial, however, of lord Byron for the murder of Mr. Chaworth, they insisted upon their right of voting, though they chose to waive that right, not choosing to be concerned in shedding of blood. The jurisdiction of a bishop, in England, consists in collating to benefices; granting institutions on the presentation of other patrons; commanding induction; taking care of the profits of vacant benefices for the use of the successors; visiting his diocese once in three years; in suspending, depriving, degrading, and excommunicating; in granting administrations, and taking care of the probate of wills: these parts of his function depend upon the ecclesiastical law. By the common law, he is to certify the judges touching legitimate and illegitimate births and marriages. And to his jurisdiction, by the statute law, belongs the licensing of physicians, surgeons, and school-masters; and the uniting small parishes; which last privilege is now peculiar to the bishop of Norwich.

* BISHOPS-CASTLE, a town in Shropshire, it has a good market on Fridays, and six fairs, held on the Friday before February 13, on the Friday before Good-Friday, the first Friday after May-day, July 5, September 9, and November 13, for sheep, horned cattle, and horses. It is seated not far from the river Chas, and is an ancient corporation, enjoying great privileges. This town is governed by a bailiff, recorder, and fifteen aldermen, out of whom the said bailiff is chosen yearly, and is a justice of the peace and quorum that and the ensuing year. The members of parliament are chosen by a majority of the burgesses and inhabitants. It is seventeen miles south-west of Shrewsbury, and one hundred and fifty-two north-west of London. Long. 2. 25. W. Lat. 52. 30. N.

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BISHOP'S-COURT, an ecclesiastical court, held in the cathedral of each diocese by the bishop's chancellor, who judges by the civil and canon law; and if the diocese be large, he has commissaries in remote parts, who hold what they call consistory courts, for matters limited to them by their commission.

BISHOPRIC, a diocese, or the district over which a bishop's jurisdiction extends.

BISKET, or **BISCUIT**, a kind of bread used in the sea-service, especially in long voyages.

Bisket, in order to be good, should be made six months before it is put on board a ship; it should also be made of good wheat flour, thoroughly cleaned from the bran.

BISKET, among confectioners, a kind of bread made of fine flour, eggs and sugar, with the addition of rose or orange-flower water. Sometimes aniseeds, caraway seeds, preserved orange, citron, or lemon peel, are added, and the different compositions distinguished by different names, as seed-bisket, long-bisket, round-bisket, Naples-bisket, sponge-bisket, &c.

BISMUTH, or **TIN-GLASS**, in natural history, a sparkling white semi-metal, very ponderous, considerably hard and sonorous, extremely brittle, without any degree of malleability, falling in pieces under the hammer, and reducible by triture into fine powder. When broke, the surface of the fracture appears composed of bright plates or flakes, larger than those of the other semi-metals. In its external appearance, it has a great resemblance to regulus of antimony and zinc, differing little otherwise than in the largeness of the plates, and in its contracting a yellowish cast on the surface exposed to the air. In its intrinsic properties, it is extremely different; melting far more easily, not evaporating so readily, being differently acted upon by acids, producing different effects upon other metallic bodies, &c.

The nitrous acid dissolves bismuth with great effervescence, and a copious discharge of yellow corrosive fumes. The solution, if the bismuth has not been too hastily added to the acid, proves colourless and transparent: diluted with a large quantity of water, it becomes milky, and deposits, on standing, a fine white precipitate, or magistery; whichedulcorated by repeated effusions of water, is employed as a cosmetic, both in washes and pomatums, under the name of Spanish or pearl white.

Magistery of BSIMUTH. There are sundry variations in preparing this magistery. Some take aqua regia for the menstruum; and for the precipitant, a solution of sea salt, alcalies, spirit of wine, &c. Some mix with the solution of bismuth, a solution of benzoïn in spirit of wine, and thus obtain a magistery composed of calx of bismuth and benzoïn. Others add a solution of chalk to the metalline solution, and precipitate both together with alcalies. The magistery appears to have some latent corrosive quality; and when freely used as a fucus, not to be entirely innocent: it gradually impairs the natural complexion, and leaves, for old age, a coarse and disagreeable skin. The peruke makers are said to employ it in their pomatums, for giving a whiteness to grey, reddish, yellow, or other coloured hair; and Pomet observes, that a shower of rain will wash off this adventitious whiteness. I have been informed also, that those who bleach hair in England make use of this magistery; and therefore I determined to examine by experiment its effects upon hair. Experiment satisfied me that the report was groundless; that the magistery of bismuth does not whiten hair, but darken it; that it changes the whitest flaxen hair first to a yellowish, then to a yellowish brown, afterwards to a dark brown, and at last to a black. The trial may be made in two ways; by boiling the hair in water along with the magistery; or by applying the magistery mixed with pomatum, and hanging the hair in the sun; the oftener this is repeated, the darker will the colour be. We may judge from hence, that this magistery is less fit for the purposes of a cosmetic, than it is generally supposed to be. The magistery itself has been commonly believed to change its colour in the sun, and hence it is directed to be dried cautiously in a shady place: but it did not appear to have suffered any considerable alteration in being exposed to the sun for two months. It is apt, however, in length of time, to turn yellowish; and hence a large stock should not be prepared at once. *Neumann's Chemistry.*

BISSECTION, in geometry, the dividing a line, angle, &c. into two equal parts.

BISSEXTILE, in chronology, a year consisting of 366 days, being the same with our leap-year. The day also, which is this year added, is called bissextile.

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The true solar year, or that space of time which flows while the sun is moving from any one point of the ecliptic till he returns again to the same point, consists of 365 days, 5 hours, 48 minutes, 57 seconds. But the year made use of by the ancient Egyptians, consisted of 365 days only, which being about six hours less than the true solar year, they lost a day nearly every four years. This inconvenience did not escape the observation of Julius Cæsar, who being then high priest among the Romans, ordered that every fourth year should have an additional or intercalary day, and the sixth of the calends of March should be that year reckoned twice: and hence both the intercalary day, and the year when it happened, were called *bissexile*. This method of computation is called the Julian account, or *Old Style*.

But as the true solar year consists of 365 days, 5 hours, 49 minutes nearly, it follows that, according to this way of reckoning, the civil year will, at the end of every four years, begin 44 minutes sooner than it did before, and consequently it will, in 331 years, anticipate one whole day. This induced pope Gregory XIII. in the year 1582, to attempt a reformation of the calendar; and finding that the equinox had been anticipated, since the Nicene council held in the year 325, ten whole days, he ordered that these ten days should that year be taken out of the calendar, and that the 11th of March should be called the 21st. He also ordered, that every hundredth year, which according to the Julian form was to be *bissexile*, should be a common year, consisting of 365 days only: but because this was too much, every four hundredth year was to remain *bissexile*. This method of computation is called the *Gregorian account*, or *New Style*; and was immediately followed in most foreign countries. Great Britain however still followed the *Old Style*, till the year 1752, during which interval one day more was anticipated. It was therefore ordered, by act of parliament, that eleven days should that year be taken out of the calendar, and that the natural day following the second of September, should be called the fourteenth, omitting the intermediate eleven days; and that the *New Style* should for the future be observed. By this correction the feasts and fasts of the church are now kept according to the original decision of the council of Nice.

BISTORTA, bistort or suckweed, in botany, a plant, the root of which is

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bent and jointed, commonly about the thickness of the finger, surrounded with bushy fibres, of a blackish brown colour on the outside, and reddish within: it is distinguished from the roots of the other bistorts, by being less bent; that of the officinal species having only one or two bendings, and those of the others three or more. This root has a strong astringent taste, without any manifest smell, or particular flavour. It is one of the strongest of the vegetable styptics, and frequently made use of as such, in disorders proceeding from a laxity or debility of the solids, for restraining alvine fluxes, after due evacuations, and other preternatural discharges, both serous and sanguineous. It has been sometimes given in intermitting fevers; and sometimes also in small doses, as a corroborant and antiseptic, in acute, malignant, and colliquative fevers; in which intentions, Peruvian bark has now deservedly superseded both this and all the other astringents. The common dose of bistort root, in substance, is fifteen or twenty grains: in urgent cases, it is extended to a dram.

BISTOURY, in surgery, an instrument for making incisions, of which there are different kinds, some being of the form of lancets, others straight and fixed in the handle like a knife, and others crooked with the sharp edge on the inside.

BISTRE, among painters, signifies the burnt oil extracted from the foot of wood.

Bistre may be prepared with great ease in the following manner.

Take any quantity of foot of dry wood, but let it be of beech wherever that can be procured. Put it into water in the proportion of two pounds to a gallon; and boil them half an hour: then, after the fluid has stood some little time to settle, but while yet hot, pour off the clearer part from the earthy sediment, at the bottom; and if on standing longer it forms another earthy sediment, repeat the same method, but this should be done only while the fluid remains hot: evaporate then the fluid to dryness; and what remains will be good bistre, if the foot was of a proper kind. The goodness of bistre may be perceived by its warm deep brown colour, and transparency when moistened with water.

BIT, or **BITT**, an essential part of a bridle, and of which those are of various kinds. The several parts of a snaffle, or curb-bit, are the mouth-piece, the cheek and eyes, guard of the cheek, head

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head of the cheeks, the port, the welts, the campanel or curb and hook, the bolles, the bolsters and rabbits, the water-chains, the side-bolts, bolts and rings, kirbles of the bit or curb, trench, toprol, flap, and jeive.

BIT, the iron part of a piercer, augre, and the like instruments.

BIT of a Key, the part which contains the wards.

BITS, in naval architecture, strong pieces of square timber let down through, and fixed in holes of, the decks above and below, called mortises, and bolted to the beams. There are several bits in a ship, the principal of which are those for the cable. Of these, in ships of war there are commonly two pair; and when they are both used at once, the cable is said to be double-bitted. See *Freshen the HAWSE, SERVICE*. To bit the cable is to put the double part or bight of it round the bits. The other bits are of a smaller kind for fastening the topfail sheets. See **QUARTER-BLOCK**.

BITTER, *Amarus*, an opposite taste to sweetness.

Bitters are accounted stomachic and cleansing, and are said to resist putrefaction, correct acidities, and assist digestion; though there are not wanting some who will have them to be hurtful to the stomach, except in so far as their astringency contributes to brace the fibres.

BITTER-APPLE, in botany, a name given to the colocynthis. See **COLOCYNTHIS**.

BITTERN, in ornithology, the name of a bird of the heron kind, called by authors, ardea stellaris; and by some taurus, botaurus, butorius, and oncus.

In English, the butter-bump, and mire-drout, being nearly of the size of a common heron, it makes a very remarkable noise, which it repeats either three or five times. It is heard only in the building time, which begins in February. The common people, from the singularity of the noise, think the bird, in order to make it, sticks its beak in a reed, or in the mud. It is commonly found in sedge and reedy places, near the waters, and sometimes in hedges. Towards autumn this bird flies very high in an evening after sun-set, rising with a spiral ascent, till quite out of sight; and as they rise they make an odd noise, not at all like their usual note. This they repeat also very often, as they are on the wing in the night; and hence they are called by some, though improperly the night-raven.

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It builds on the ground, and lays five or six eggs, which are roundish, and of a greenish white. When wounded, and going to be taken, it strikes at the person's eye, and ought therefore to be carefully guarded against.

BITTERN, in the salt-works, a liquor left after the boiling and crySTALLIZING of the salt, of a nauseous bitter taste.

BLACK, a well known colour, supposed to be owing to the absence of light; and the rays thereof being imbibed by the black bodies. See **COLOUR** and **LIGHT**.

Black bodies are not only warmer, but more inflammable than others, as is proved by various experiments; for which the curious may consult Boyle, and other philosophers who have treated of this subject.

BLACK, among dyers, one of the five simple and mother colours used in dying. It is made differently, according to the several qualities of the stuffs that are to be dyed. For stuffs of a high price, as woollen cloth, and ell and a half or an ell and a quarter wide, broad and narrow ratteens, fine woollen druggets, &c. they must use a black made of the best woad and indigo, inclining to a bluish brown. The goodness of the composition consists in there being not above six pounds of indigo ready prepared to each ball of woad, when the latter, being in the tub, begins to cast its blue flower; and in not being heated for use above twice; after which it must be boiled with alum, tartar, or ashes of lees of wine; then maddered with common madder; and lastly, the black must be given with gall-nuts of Aleppo, copperas, and sumach. As for more indifferent stuffs, such as small ratteens and shalloons, as they cannot pay for the expence of maddering, it is sufficient that they be well boiled with woad, and afterwards blacked with gall and copperas. There is likewise the Jesuit's black, which is made with the same ingredients as the good black, but without having first dyed the stuff blue.

German BLACK, called by some Frankfort black, is made of the lees of wine, burnt, washed afterwards in water, then ground in mills made for that purpose, with ivory, bones, or peach-stones, also burnt.

Bone-BLACK is made with the bones of oxen, caws, &c. and is used in painting.

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ing; but it is not so much esteemed as ivory-black.

Hart's BLACK is that which remains in the retort after the spirits, volatile salt, and oil, have been extracted from hart's-horn. It answers the purposes of painters almost as well as ivory-black.

Spanish BLACK is but burnt cork; it is used in several works.

Earth-BLACK, a sort of coals found in the ground, which the painters and limners use to paint in fresco, after it has been well ground.

There is also a black made with gall-nuts, copperas, or vitriol, such as common ink; and a black made with silver and lead, which serves to fill up the cavities of engraved things.

Lamp-BLACK is the sort of oil collected as it is formed by burning. It is the principal black at present used in all nicer kinds of painting; for notwithstanding ivory-black far surpasses this in colour, the gross and adulterate preparation of all that is to be now obtained has occasioned it to be greatly rejected.

Ivory-BLACK, the coal of ivory or bone, formed by giving them a great heat, all access of air to them being excluded. It is, when pure and genuinely prepared from the ivory, a full clear black; and would be the most useful of any, in every kind of painting, but that it is apt to dry somewhat too slowly in oil. At present, nevertheless, being prepared only by those who manufacture it from bones in very large quantities for coarse uses, and sell it at an extreme low price, it is so grossly levigated, being ground only in hand or horse-mills, and adulterated moreover copiously with charcoal dust, which renders it of a blue cast, that it is wholly exploded from all more delicate purposes, and lamp-black used in the place of it, though inferior, with regard to the purity and clearness of the black colour, to this when good.

The goodness of ivory-black may be perceived by its full black colour, not inclining too much to blue; and by its fineness as a powder.

Blue-BLACK is the coal of some kind of wood, or other vegetable matter, burnt in a close heat where the air can have no access. The best kind is said to be made of vine stalks and tendrils.

Carrier's BLACK signifies a teint or dye laid on tanned leather; of which there are usually two, the first made of galls, four ale, and old iron; the

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second of galls, copperas, and gum arabic.

BLACK-BIRD, *Merula*, in ornithology. See *MERULA*.

BLACK Flux, in mineralogy, a flux used in the assaying of ores, and is made as follows:—Take one part of nitre, and two parts of common tartar; reduce each to powder, mix them together, and defflagrate the whole in a crucible, by lighting the mixture at the top; which thus turns to a kind of alkaline coal, that is to be pulverized and kept in a close glass, to prevent its dissolving, as it would do in a moist air. This flux is of general use; and to have it ready at hand, shortens the business of making assays in metallurgy, and renders the operation more exact, than when crude tartar and nitre are employed.

BLACK Tin, in mineralogy, a denomination given to the tin-ore when dressed, stamped, and washed ready for the melting houses, where it is refined into a pure metal.

BLACK, in heraldry, is called sable. See *SABLE*.

BLACK, in horsemanship. Black horses are very beautiful, especially when they are of a jet shining black, and well marked, and have not too much white: for as a great deal of white, especially when it spreads round their eyes, and a great way up their legs, adds nothing to their beauty, so neither does it add any thing to their goodness. The English black horses have more white than the black horses of any other country. A star or blaze, and sometimes a white muzzle, and one or more of the feet tipped with white, always looks beautiful and lively, and is no diminution to the goodness of a horse, but rather an addition, from an opinion that horses without any mark are generally stubborn and ill-conditioned. I have found many of the English black horses, especially of the largest breed, not so hardy as the bays and chestnuts, &c. Those that partake most of the brown, are generally the strongest in constitution. *Gibson on Horses.*

BLACK-STRAKES of a Ship, the planks immediately below the bends, which are covered always with tar mixed with a black powder, and form an agreeable contrast to the white bottom below, and the scraped planks covered with turpentine above.

* **BLACK, or EUXINE SEA**, between Europe and Asia, is bounded by Tartary on the north, by Circassia, Min-

grelia, and Georgia, on the east, by Natolia on the south, and by Romania, Bulgaria, and Bessarabia, on the west. It is five hundred and eighty miles in length, and three hundred in breadth where broadest. It receives several large rivers, as the Danube, which first receives a great number of rivers, from several countries in Europe, the Neister, the Nieper, the Don, the Copo, and the Phasis. The prodigious quantity of water discharged by these rivers into this sea has puzzled many ingenious naturalists, to account for its not rising any higher, since the only outlet is the Thracian Bosphorus, which is nothing near so large as any of the rivers before mentioned. Hence they concluded that the Black Sea must empty itself by subterranean channels, which they imagined might run through Asia and Europe. But they forgot the principal cause which preserves the equilibrium of the waters in general, which is the evaporation by the heat of the sun. To this may be added the action of the winds, which doubtless carry off great quantities of watery particles; for it is well known that wet cloaths, exposed to a brisk wind, will soon become dry, which can be from no other reason than from its carrying off the moisture. The Black Sea is entirely surrounded by the grand seignor's dominions, and he enjoys the sole navigation of it, though it is sometimes disturbed by the excursions of the Cossacks, who issue out of the mouth of the Nieper, and make great ravages on the coasts of Turkey. The Turks reckon it a very tempestuous sea, whence it has the name of the Black Sea. But what renders it most dangerous is the want of good harbours to put into in case of a storm, for there are but few of these in its whole circuit.

* **BLACK-FRIARS BRIDGE**, was determined on in 1759, and opened for passengers November 19, 1766.

BLADDER, *vesica urinaria*, in anatomy, a kind of membranous and fleshy pouch or bottle, capable of dilatation and contraction, situated in the lower part of the abdomen, immediately behind the symphysis of the ossa pubis, and opposite to the beginning of the intestinum rectum. The figure of it is nearly that of a short oval. It is broader on the fore and back sides than on the lateral parts; rounder above than below, when empty; and broader below than above when full.

It is divided into the body, neck, and bottom; into an interior, posterior, and two

lateral parts. The upper part is termed the fundus or bottom, and the neck is a portion of the lower part, which is contracted like the gullet of some vessels.

The bladder is made up of several coats, almost like the stomach. That part of the external coat which covers the upper, posterior, and lateral sides of the bladder, is the true lamina or membrane of the peritonæum; and the rest of it is surrounded by a cellular substance, by the intervention of which the peritonæum is connected to the muscular coat. The proper coats are three in number, one muscular, one nervous, and one villous, which is the innermost. The lower part of the bladder, which deserves the name of fundus much better than the upper part, is perforated by three openings, one anterior and two posterior. The anterior opening is formed by an elongation of all the proper coats, in form of a gullet, turned much in the same manner with the inner orifice of the rostrum of the head of an alembic. This elongation is called the neck of the bladder. The other two openings in the true fundus of the bladder are formed by the ureters, which, in their course downward, run behind the spermatic vessels, and then behind the lower part of the bladder, approaching near each other. See **URETERS**.

The diseases of the bladder are the stone, inflammations, ulcers, &c. See **STONE**, &c.

For the other bladders of the body, see **VESICULA**.

BLADE, in botany, that part of the flower, or florid attire of a plant, which arises out of the concave of the sheath, and, at the top, usually divides into two parts, which are covered with globules of the same nature as those of the apices, but not so copious.

BLADE, a thin slender piece of metal, either forged by the hammer, or run and cast in moulds, to be afterwards sharpened to a point, edge, or the like.

BLAIN, among farriers, a distemper incident to beasts, being a certain bladder growing on the root of the tongue, against the wind-pipe, which swells to such a degree, as to stop the breath. To cure it, cast the beast, take forth his tongue, and then sitting the bladder, wash it gently with vinegar and a little salt.

* **BLANDFORD**, a town in Dorsetshire, it has a market on Saturday, and three fairs, on March 7, July 10, and Novem-

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November 8, for horses, sheep, and cheese, and October 10, for pedlar's ware and cattle. It is seated on the river Stour, near the Downs. It was burnt down in 1731, but has been since rebuilt in a handsome manner; they have likewise a new beautiful church; and the market place is enlarged. It is governed by two bailiffs, who are annually chosen out of the aldermen or capital burgesses. It is eleven miles south of Shaftesbury, and one hundred and seven west-by-south of London. Long. 2. 15. W. Lat. 50. 50. N.

BLANCHING, in general, the art of bleaching, or whitening. See **BLEACHING**.

BLANCHING of copper, so as to make it resemble silver. If it be done for sale, it is felony, by 8 and 9 William III. ch. xxvi.

BLANCHING, in coinage, the operation performed on the planchets or pieces of silver, to give them the requisite lustre and brightness. They also blanch pieces of plate, when they would have them continue white, or have only some parts of them burnished.

BLANCHING, among gardeners, an operation whereby certain fallads, roots, &c. are rendered whiter than they would otherwise be.

BLANCHING also denotes the operation of covering iron plates with a thin coat or crust of tin.

* **BLAKE** (**ROBERT**) one of the bravest admirals that this nation has ever produced; he was born in August, 1589, and educated at the university of Oxford, where he took the degree of bachelor of arts. He was early tinctured with republican principles, and therefore, when the war broke out between the king and parliament, he declared for the latter, and was soon made captain of dragoons, and not long after lieutenant-colonel. He, in conjunction with sir Robert Pye, seized Taunton, in Somersetshire, and afterwards maintained his post against Goring, who laid siege to it with near ten thousand men, and though a part of the town was taken, he held out the rest of it, and the castle, till relief came. In 1648-9, he was appointed, in conjunction with colonel Deane and colonel Popham, to command the fleet, and soon after blocked up prince Maurice and prince Rupert in Kinsale harbour. In 1652, he was constituted sole admiral, when he defeated the Dutch fleet commanded by Van Trump, Ruyter, and De Wit, in three several engagements, in which the Dutch lost eleven men of war, thirty mer-

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chant-ships, and, according to their own accounts, had fifteen thousand men slain. Soon after, Blake and his colleagues, with a grand fleet of an hundred sail, stood over to the Dutch coast, and forced their fleet to fly for shelter into the Texel, where they were kept for some time by Monk and Dean, while Blake sailed northward. At last, however, Trump got out, and drew together a fleet of an hundred and twenty men of war; and on the third of June, the generals Dean and Monk came to an engagement with the enemy off the North Foreland, with indifferent success; but the next day Blake coming to their assistance with eighteen ships, gained a complete victory; so that if the Dutch had not saved themselves on Calais sands, their whole fleet had been sunk or taken. In November, 1654, Cromwell sent him with a strong fleet into the Mediterranean, with orders to support the honour of the English flag, and to procure satisfaction for any injuries that might have been done to our merchants. In the beginning of December, Blake came into the road of Cadiz, where he was treated with all imaginable respect; a Dutch admiral would not hoist his flag while he was there; and his name was now grown so formidable, that a French squadron having stopped one of his tenders, which had been separated from Blake in a storm, the admiral, as soon as he knew to whom it belonged, sent for the captain on board, and drank Blake's health before him with great ceremony, under a discharge of five guns, and then dismissed him.

When he received information that the Spanish plate fleet had put into the bay of Santa Cruz, in the island of Teneriffe, he weighed anchor, with twenty-five men of war, on the 13th of April 1657, and on the 20th rode with his ships off the bay of Santa Cruz, where he saw sixteen Spanish ships lying in the form of a half-moon. Near the mouth of the haven stood a castle, furnished with great ordnance, besides which there were seven forts round the bay, with six, four, and three guns on each, joined to each by a line of communication manned with musqueteers. To make all safe, Don Diego Diagues, general of the Spanish fleet caused all the smaller ships to be moored close along the shore, and the six large galleons stood farther out at anchor, with their broadsides towards the sea. Blake having prepared for the fight, a squadron of ships was drawn out to make the first onset, commanded by captain Stayner in the *Speaker*

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frigate, who no sooner received orders, but sailed into the bay, and fell upon the Spanish fleet, without the least regard to the forts, which spent their shot prodigally upon them. No sooner were these entered into the bay, but Blake following after, placed several ships to pour broadsides into the castle and forts, and these played their parts so well, that, after some time, the Spaniards found their forts too hot to be held. In the mean time, Blake struck in with Stayner, and bravely fought the Spanish ships, out of which the enemy were beaten by two o'clock in the afternoon, when Blake, finding it impossible to carry them away, ordered his men to set them on fire, which was done so effectually, that they were all reduced to ashes, except two, which sunk downright, nothing remaining above the water but part of the masts. The English having now obtained a complete victory, were reduced to another difficulty by the wind, which blew so strong into the bay, that they despaired of getting out; but while they were in this dreadful exigence, it suddenly veered about to the south-west, (a thing not known in many years before) which brought Blake and his fleet safe to sea again, though the Spaniards from the castle played their great guns perpetually upon them as they passed by. This is allowed to have been one of the most remarkable actions that ever happened at sea. This was, however, the last action of his life, for he died upon his return in Plymouth Sound, on the 17th of August, 1657, aged fifty-nine, and was interred in Westminster-abbey; but four years after, this brave and excellent commander was taken up, and ignominiously buried in a pit, in St. Margaret's church-yard.

BLANK, or **BLANC**, white. See **WHITE**.

BLANK, in commerce, a void place which merchants sometimes leave in their day-books or journals. It is also a piece of paper, at the bottom of which a person has signed his name, the rest being void. These are commonly intrusted into the hands of arbiters, to be filled up as they shall think proper, to terminate any dispute or law-suit.

BLANK-VERSE, in modern poetry, that composed of a certain number of syllables, without the assistance of rhyme. See **VERSE** and **RHyme**.

BLANKET, a coverlet for a bed: a stuff commonly made of white wool, and wrought in a loom like cloth; with this difference, that they are crossed like serges. There are also blankets made with the

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hair of several animals, as that of goats, dogs, and others. The manufacture of blankets is chiefly confined to Witney in Oxfordshire, where there are said to be at least sixty blanketers, who, amongst them, have, at least, one hundred and fifty looms, and employ three thousand persons, from children of eight years old, who work out about a hundred packs of wool per week.

BLASPHEMY, an indignity offered to the Almighty, by denying what is of right belonging to him; or by attributing to the creature that which is due only to the Creator. The primitive church distinguished blasphemy into three sorts. 1. The blaspheming of apostates, whom the heathen persecutors obliged not only to deny, but to curse Christ. These blasphemers were punished with the highest degree of ecclesiastical censure. 2. The blasphemy of heretics, and other profane Christians. In this sense, they included not only those who maintained impious doctrines, but those who uttered profane and blasphemous words, derogatory to the majesty and honour of God. The same punishment that was inflicted upon heretics and sacrilegious persons, was consequently the fate of this sort of blasphemers. 3. The blasphemy against the Holy Ghost, concerning which the opinions of the ancients varied. Some apply it to the sin of lapsing into idolatry and apostacy, and denying Christ in time of persecution. Others made it consist in denying Christ to be God: others, in denying the divinity of the Holy Ghost: and others place it in a perverse and malicious ascribing the operations of the Holy Spirit to the power of the devil; and that against express knowledge and conviction of conscience. Blasphemy, among the Jews, was punished by stoning the offender to death. With us it is punishable at common law, by fine and pillory. And by a statute of William III. if any person shall, by writing or speaking, deny any of the persons in the trinity, he shall be incapable of any office: and for the second offence, be disabled to sue in any actions, or to be an executor, &c.

BLAST, in a general sense, any violent explosion of air, whether occasioned by gun powder, or by the action of a pair of bellows.

BLAST, or **BLIGHT**. See **BLIGHT**.

BLASTING, a term used by miners for the tearing up rocks, which lie in their way, by the force of gunpowder. In order to do this, a deep hole is made in the rock, which being charged with gunpowder

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powder, they fill it up; leaving only a touch-hole, with a match to fire the charge.

BLAZE, a white spot in a horse's face.

BLAZING-STAR. See **COMET**.

BLAZONING, or **BLAZONRY**, in heraldry, the art of decyphering the arms of noble families. The word originally signifies the blowing or winding of a horn, and was introduced into heraldry as a term denoting the description of things borne in arms, with their proper significations and intendments, from an ancient custom the heralds, who were judges, had of winding an horn at jousts and tournaments, when they explained and recorded the achievements of knights. In blazoning a coat of arms, you must always begin with the field, and next proceed to the charge; and if there be many things borne in the field, you must first name that which is immediately lying upon the field. All persons beneath the degree of a noble, must have their coats blazoned by colours and metals; noblemen by precious stones, and kings and princes by planets.

BLEA, in the anatomy of plants, the inner rind or bark. It may be considered as an assemblage of straight fibres ranged vertically and parallel to one another.

BLEACHING, the art of whitening linens, stuffs, silks, hair, wax, &c.

The proper materials for bleaching either linen yarn, or cloth, are wood-ashes brought from Muscovy and Germany, and Cassow, also a sort of ashes imported from Dantzick. But the common wood-ashes and weed-ashes made in this kingdom, are as good as the best, unless it be for bleaching cloth of a very high price. He that would bleach well, must be provided with a convenient bleaching-yard, bleaching-house, and all things suitable; for shifts in trade fail in the event. He ought to have his bleaching-yard well watered. The nature of the water ought to be soft, such as will break soap. The yard ought to be so situated, as that in the drought of summer the trenches and pipes may be constantly supplied. As for the bleaching-house, it ought to be furnished with good coppers and boilers, good tubs for bucking, and also stands and vats, for keeping the several sorts and degrees of lyes, and other great stands and vats for keeping the milk, or acidulated liquor.

In the bleaching of your yarn, you must first open each hank, and lay it on your bucking tub; then cover your yarn with cold water, and let it steep for about nine

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hours: therefore let go that water by means of a cock, which ought to be fixed near the bottom of your tub; and then fill it again with water. Continue thus to steep and cleanse your yarn from its filth, till such time as you perceive that the water is no way foul that comes from it: then withdraw your yarn out of your tub, and rinse it well in clean water. After rinsing it, you must wring out all the water, by wringing three or four hanks at a time: then lay it out to dry in your bleaching-yard; but be sure never to beat or beetle it. By the time your yarn is perfectly dry, you are to be provided with lye proper for bucking. The first bucking you give your yarn, ought to be with the strongest lye. Your yarn being quite dry, you must dip three or four hanks at a time, and lay them in your bucking tub, in the most equal and even manner that possibly you can; never pressing them too much, to the end the lye may the better pierce and penetrate them. All your yarn being thus laid in your tub, put the remainder of your lye, in which you dip your yarn, into a pot or pan, and make a slow fire under it, taking care not to heat your lye so for the first five hours, whilst you are thus bucking, but that you may be able to endure your hand in it. Your fire made, you must very often take out some of your lye, and pour it upon your yarn in your tub; then you must increase your fire gradually and slowly, so as in four hours time more to bring your lye to boil: during all which time, you must continue to take your lye out of your copper, and put it into your tub by small quantities at a time. When your lye begins to boil, you must let it boil on for three hours, during the whole time lading or pouring your lye out of your copper into your tub; so that you will be twelve hours bucking your yarn. If your lye was strong and good, your yarn will be brought to a yellow colour, if the improper preparing of some flax does not hinder it; but where you find your yarn, or part of it, does not attain to this yellow colour, you must repeat bucking until it answers your ends. When your yarn is sufficiently bucked for your purpose, you must take it out, rinse it in cold water, and wring it well: taking care to wring but three or four hanks at a time, that it may the better endure the labour. Be sure never to beat or beetle it, as hath been already observed. Then spread it out in your bleaching-yard; where it must lie exposed to the weather for three or four days before you turn it. When that time is

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is over, turn it, and let it lie there till the side that is undermost be as good a colour as the other. You must water yarn on the bleaching-yard as you do cloth, that it may whiten the sooner, and lie the shorter time upon the green. This bleaching, which was just now prescribed to be given to your yarn, is not intended to make it very white, but chiefly to cleanse it from the filth that is incident to it, that your cloth may be the thicker and stronger, and with more ease brought to a colour when it comes to be bleached. Wherefore bleach your yarn for all kinds of cloth, except cambrics and lawns, the yarn whereof should not be bleached before it be woven.

BLEACHING in Linen Cloth. In order to perform this operation, you must begin with it as you did with your yarn, by steeping it in cold water in your tub for nine hours; then change the water on it, till such time as you can perceive that the water is no longer discoloured; rinse, wring, and lay it out to bleach, observing constantly to water it so as never to suffer it to be too dry. When it hath lain three or four days thus on the grass, and is dry, you must take hold of each piece, one after another, by the selvedge, and draw the cloth to you, still holding it in the most even manner that you can, until you come to the farther end, with the corners of which you tie your cloth very loosely in the middle of the folds, and so lay it in your bucking-tub, with the two selvedges upwards. This you must do until you have placed as much cloth in your tub as will cover the bottom of it, taking care not to pack the cloth so close but that your lye may penetrate to all parts equally; and at the same time you must observe, never, if possible, to back your cloth but when it is very dry. When you have laid the first range of cloth in your tub, you must pour as much milk-warm lye on it as will sufficiently soak through all parts of your cloth. Then you must lay another range in the same manner as you did the first; pour on more lye until that be soaked as the other was; and continue to do so till your tub be full. That done, you must begin to back, for twelve hours together, observing the directions, in relation to the fire, given for the former article. Your two first buckings ought to be of very strong lye; but afterwards you should abate of that strength in proportion as your cloth grows nearer to its perfection of whiteness, lest you make it rotten and unserviceable by over-strong lye. After each buck-

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ing you must carry it straight to the bleaching-yard, where it ought to lie forty-eight hours. This you must perform successively as many times as you see occasion, according to the nature of the cloth, from the buck to the bleaching-yard, and from the bleaching-yard to the buck, before you begin to use it with milk; still giving it weaker lye after the two first buckings, and constantly observing to water your cloth on the grass, so as never to suffer it to be dry during these bleachings. It is impossible to prescribe a certain rule, or to direct the precise number of buckings that ought to be given to cloth, because that depends on the sorts or kinds you are to bleach; and therefore the experience and judgment of the bleacher must guide him therein. Your thin fine cloths will bleach much sooner than your coarse or stiff stubborn cloths will do: but both sorts must be dry when you put them into the milk; or which will answer the same purpose, a quantity of water rendered acid by oil of vitriol, in the proportion of half an ounce of the latter to a gallon of the former.

The milking of cloth or laying it in an acidulated liquor, was not used till of late; but it is found by experience to contribute greatly to bring cloth to a good colour. It has been already observed, that you must have large tubs or vats for the keeping of your milk. These vats, which should hold a ton or two a-piece, you ought to keep full of butter-milk, or sour milk, as it is commonly called, skimmed milk, whey, and the like, mixed together; there to stand and sour, until you have occasion to use them. It is very rare that your milk proves too sour; but if at any time it should, abate its sourness by adding cold water. When your cloth is dry, and ready to be milked, have a great tub with milk set half way in the ground. Your cloth being well soaked therein, you must press it down with heavy planks or weights, so as it may not be raised by the fermentation that will be in your milk or acid liquor. When the cloth has lain a-while, take care that these weights be sufficient; and that your planks be neither of new oak or alder, for those woods spoil and stain cloth very much, as will also several sorts of stones, if laid upon cloth either in the tubs or in the field. Thus your cloth must sleep for at least forty-eight hours; or, if you please, for three days and three nights; for it will be so much the better for the cloth: then spread it on the green and water it well, to prevent its drying with the milk or acid in it: when

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when this is sufficiently done by watering, you must rinse the cloth, and wash it well with a lather of soap. Your next business is to buck the cloth again just as it comes from the soap-suds; and when bucked, you must, without further rinsing, spread it on the grass in your bleaching-yard: there it must remain exposed to the air for two days and two nights, and be constantly watered in the day-time, when you lay it out to bleach. This operation must be repeated six, seven, or eight times successively, until you perceive your cloth is come to the colour you desire to give it; that is, you must milk, then bleach, then wash, then soap, and buck by turns, until you attain your end; for it is impossible to propose a certain rule, because of the great variety of cloth: only this must be observed, that each time you buck, you must spend twelve hours, during all which time you ought to be constantly lading or pouring the lye into your tub, according to the former directions; for otherwise you may chance to burn your cloth, especially when the lye grows hot. This rule is also constantly to be observed, that your cloth be very dry when you lay it in the milk or acid liquor. This last time you milk your cloths, you ought, instead of the usual washing or rinsing, to lay them in an open cistern; where people with clean feet should tread them very well for half an hour at least. That done, wash them with clean water, until you perceive the fluid to be no way discoloured: then having made your bucking-tub very clean, lay your cloths in it just as you did at first, and steep them in warm water for an hour: then let go that water, and steep them a second time in water somewhat warmer, for an hour longer: let that water go likewise, and steep your cloths a third time in water yet warmer than the former; but not so hot as to boil. This last steeping need not be near so long as the preceding; half an hour is sufficient. Then take out your cloth, rinse and wring it well, that it may be cleansed from the lye, milk, or acid liquor, and soap, and made more susceptible of receiving the starch and blue; which is the next operation.

The way to make starch for bleaching is this: Fill the boiler or pan, wherein you design to make your starch, about three quarters full of water; when the water boils, pour into it as much starch dissolved in water, as will completely fill your boiler; keep it stirring perpetually, lest it burn, and let it boil for half an hour, or thereabouts; then take it off the

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fire, strain it into another vessel with warm water, in proportion to the cloth you design to dress, taking great care to keep it stirring, breaking and dissolving the clods of starch, that the whole may be of an equal thickness or consistency. When this part of the operation is finished, mix powder blue in water, in such proportion as you would give your cloth a higher or a lower colour, and add it to your starch prepared as above. By this means you may make your starch thicker or thinner, as you think will be best adapted to your cloth. Take great care never to use indigo, or stone blue; because it gives a dull dark colour.

When you have thus prepared your water for starching and bluing, put your cloth into it; and when it is well soaked, take it out, wring it very hard, and spread it on the grass in your bleaching-yard to dry. You will generally find that the blue will settle in some parts of your cloth more than in others: in which case you must, with a clean cloth wet in water, rub such parts till you bring them down to the colour they ought to have. Your cloths being now well starched and blued, according to the circumstances or nature thereof, and being very dry, either fold them up yourself, or send them to a lapper.

It is necessary to add a word or two in reference to the preparing of lye for bucking your cloth. It has been already mentioned, that the best ashes yet known in the world, are wood-ashes and cassoup. But it is impossible to prescribe such a rule as would render a person entirely ignorant of the bleaching trade perfect; for it is in this, as in every other mechanical trade, requisite, that the person employed should have experience and judgment enough to know the goodness or imperfection of the materials to be employed: but those who have occasion to make use of wood-ashes and cassoup, will find that the following directions will be of great service. Cassoup and wood-ashes are very hard; therefore you must reduce them severally into powder; then to each hoghead of boiling water, put 50 or 60 pound weight of cassoup, if you design to make a cassoup-lye; or the like weight of wood-ashes, if you intend to make your lye of that material: and so in proportion as to the quantity you would make. Having boiled your ashes in the water about half an hour, take the fire from under the copper, that the lye may settle; which it will not do whilst there is any heat under it. The liquor being clear, lade it gently from

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from off the ashes, and put it into a vat; where you must keep it apart from the rest, till you have occasion to use it: then put the same quantity of water into your copper as at first; and when it is settled, lade it off as before into another large vat, which ought to be twice or thrice bigger than your former, because you must mix the second and third lyes together. The third is made in the same manner as the two former. The two latter lyes are strengthened, by adding as much of the first as you judge necessary; but be sure to observe this rule; let your lye be rather somewhat too weak than too strong, because the former may be supplied by re-bucking your cloth, but if the latter should happen, it will burn and destroy the whole. You will not extract the whole strength of your ashes by these lyes, and therefore must afterwards take them out of your boiler, and lay them into a kind of mash-tub, with the bottom fenced with straw in order to prevent the ashes clodding about the hole: then pour either hot or cold water upon them, and let the whole be well mixed or mashed together: and after twenty-four hours soaking, draw it off as you do wort. This you should repeat as long as you find any strength in the ashes, and keep these several lyes together, wherewith you may abate the force of your strongest lyes, in proportion as you find your cloth grow nearer the colour desired. You will find these wood-ashes and cassoups, after you have extracted all the lye you can, very useful for manuring old grounds.

There is a great difference between cassoup and wood-ashes. The first, being of a hard, harsh quality, is more proper for your first buckings, before you put your cloth to the milk or acidulated water: it searches and pierces the cloth with more force than the other: but after milking, the wood-ashes are most proper; for by their soft oily quality they nourish the cloth, and at the same time cleanse it from its filth. The cassoup, if used after the milking or acidulating of your cloth, may make it too thin; each therefore should be used in their proper season; for nothing will so effectually bring goods into reputation, and advance trade, as an honest conscientious discharge of duty in a dealer.

In case cassoup cannot be had, you may make use of wood-ashes or pot-ashes instead of it. The ashes of any wood or plant, particularly ferns and whins, or furze, are good for bleaching cloth.

BLEACHING of Hair, is done by

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spreading the hair to be bleached upon the grass, in the same manner as linen, after it has been first washed out in a lixivious water.

This lye, with the force of the sun and air, brings the hair to so perfect a whiteness, that the most experienced person may be deceived therein; there being scarce any way of detecting the artifice, but by boiling and drying it; which leaves the hair of the colour of a dead walnut-tree leaf.

BLEACHING of Silk. The silk, being yet raw, is put into a linen bag and thrown into a vessel of boiling river water, in which soap has been dissolved, and thus boiled for two or three hours; the bag being turned several times, taken out and beaten, then washed out in cold water, and wrung out slightly, and thrown into a vessel of cold water, mixed with soap, and a little indigo. The indigo gives it the bluish cast that is observable in white silks. When it has been taken out of the second vessel, it is wrung out, and all the water and soap squeezed out, shook out to untwist, and separate the threads, and hung up in the air in a kind of stove, made on purpose, in which sulphur is burnt, the vapour of which gives the last degree of whiteness to the silk.

BLEACHING of Woollen Stuff. There are three methods of whitening woollen-stuffs; the first is with water and soap, the second is with vapour of sulphur, the third with chalk, indigo, and vapour of sulphur. For the first, when the stuffs are come from the fulling-mill, they are to be put into soaped water pretty hot, and worked afresh by force of arms over a bench, which finishes the whitening which the fulling-mill had begun; in the last place they are to be washed out in fair water and dried; this is called the natural way of bleaching. The second method is called bleaching by the flower; the stuff is first washed in river water, and then put to dry on poles, and when it is half dry, spread it out in a kind of stove; wherein sulphur is burnt, the vapour of which dissolving itself, sticks by little and little over all the stuffs, and gives it a fine whitening. The third method is thus; after the stuffs have been washed, they are to be thrown into cold water, impregnated with chalk and indigo, in which they are well agitated. they are washed afresh in elder water, then half dried on poles, and then spread in a stove to receive the vapour of the sulphur, which finishes the bleaching.

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This is to be remembered, that when a stuff has once received the steam of sulphur, it will scarce receive any beautiful dye, except black and blue.

BLEACHING of Wax, the operation of changing the colour of the yellow into a beautiful white: it is done in the following manner. The common yellow wax is first reduced into small grains, by melting it, and throwing it while hot into cold water, or spreading it into very thin cakes. The wax thus granulated or flatted, is placed in the open air on linen cloths, where it remains night and day, it being necessary that it be exposed both to the rays of the sun, and the influence of the dew. After thus lying a considerable time, it is again melted and granulated, or flattened into cakes, and once more exposed to the action of the sun and dew. These operations are alternately performed till the wax has acquired the requisite degree of whiteness. When the sun and dew have perfectly bleached the wax, it is melted for the last time, taken out of the copper with a ladle, and poured, by means of a double funnel, into shallow moulds or round cavities formed in a board, the moulds being previously wetted with cold water, that the wax may not stick to them; and in this manner the cakes of white wax we see in the shops are made. These cakes are then taken out of the moulds, and again exposed to the action of the air, dew, and sun, for two days and two nights, in order to dry them thoroughly, and render them more transparent.

• **BLECHINGLY**, a town in Surry, returns two members to Parliament; it has no market, but has two fairs, on June 22, and November 2, for horses, bullocks, and toys. The bailiff, who returns the members, is chosen annually at the lord of the manor's court. It stands on a hill, and has a fine prospect as far as the South Downs, in Sussex. It is twenty miles east of Guildford, and twenty-one south-by-west of London. Long. 17. 15. Lat. 51. 20.

BLEEDING, or BLOOD-LETTING, the operation of taking blood from any part of the body, either by the lancet, leeches, or cupping. See **PHLEBOTOMY**, **CUPPING**, &c.

Bleeding is highly necessary in the phrenitis, ophthalmia, quinsy, rheumatism, cough, hectic fits, and, in general, in all inflammatory cases. *Pringle's Observations on the Diseases of the Army.*

It is to be observed, however, that, in

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malignant and putrid disorders, bleeding frequently renders them more malignant, and therefore to be omitted, or at least not repeated, unless there appear evident marks of inflammations.

BLEEDING at the Nose, an hæmorrhage from that organ of the body, owing to the more plentiful appulse of blood to the nostrils by a stronger motion of the heart, whereby the small arteries in the pituitary coat become turgid, and too much distended, till at length they gape, and the blood rushes out. A bleeding of the nose may be promoted when persons of sedentary lives, that indulge their appetites, and so become plethoric, put their blood into extraordinary agitation by violent passions and exercises, by spirituous liquors, spices, heating, volatile medicines, hot baths, or suddenly chilling their feet. Likewise the sudden change of air from hot to cold, and cold to hot, by fits, especially at the equinoxes, may cause this bleeding; as also when from cold and moist, the air becomes highly elastic, and *vice versa*. Those moreover are liable to it who are afflicted with rheumatic, nephritic, arthritic, and ischiadic pains, or who have fevers or spasms. It sometimes happens before the eruptions of the small-pox and measles, and to those who have lost a large limb; or who labour under obstructions of the liver and spleen; hence, in an inveterate scurvy, dropsy, and cachexy, there often happens a fatal hæmorrhage. It differs much as to the quantity; some lose only a few drops, some several ounces, and some five or six pounds. No hæmorrhage is more apt to return, which it does to some in a few days, to others in a few hours. To the plethoric it is generally salutary; and there are many instances of a vertigo, a scotomia, dull, heavy pains of the head, phrenzy, and even an epilepsy, being carried off by a bleeding at the nose. On the contrary, from its suppression, there have arisen vertigoes, apoplexies, epilepsies, convulsions, noise in the ears, and hardness of hearing, and even a gutta serena. These hæmorrhages are critical and salutary in a synchus on a semicritical day; that is, between the third and fourth, or on a critical day, viz. the seventh; for as these fevers are generally caused by a plethora, they are carried off that way. But enormous and long continued bleedings at the nose, when they arise from spasms of the internal parts, and are preceded with coldness of the extreme parts, and fainting fits, generally terminate in death. In spotted

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and malignant fevers, attended with great loss of strength, it is exceeding dangerous. In chronical diseases, wherein the viscera are decayed, it is fatal, which often happens to the cachectic and hydropic.

It must be noted, that when the patient is plethoric, the bleeding must not be stopped hastily, if at all; nor when the menses in women have been suppressed, or the lochia, or the bleeding piles in men accustomed thereto, much less must a stoppage be attempted when the bleeding itself is periodical.

BLEND-METAL *Iron*, a coarse sort of iron from the Staffordshire mines, used for making nails and heavy ware; in some places also for horse-shoes.

* **BLENHEIM**, Battle of, the second of August, 1704. The allies advanced within a league of Augsburgh, and though they found the elector of Bavaria too securely posted under the cannon of that city, to be dislodged, or attacked with any prospect of success, they encamped, with Friedburg in their centre, so as to cut off all communication between him and his dominions. The duke of Marlborough having reduced him to this situation, proposed very advantageous terms of peace, provided he would abandon the French interest, and join the Imperialists in Italy. His subjects seeing themselves at the mercy of the allies, pressed him to comply with these offers, rather than expose his country to ruin and desolation. A negotiation was begun, and he seemed ready to join the articles, when hearing that marechal Tallard had passed the Black-forest to join him with a great body of forces, he declared, that since the king of France had made such powerful efforts to support him, he thought himself obliged in honour to continue firm in his alliance. The generals of the allies were so exasperated at this disappointment, that they sent out detachments to ravage the country of Bavaria, as far as Munich; and upwards of three hundred towns, villages, and castles, were inhumanly destroyed, to the indelible disgrace of those who countenanced and conducted such barbarous practices. The elector, shocked at these brutal proceedings, desired, in a letter to the duke of Marlborough, that a stop might be put to such acts of violence for opposite to true glory. The answer he received, implied, that it was in his own power to put an end to them, by a speedy accommodation. Incensed at this reply, he declared, that since they had obliged him to draw the sword, he would throw away the scabbard. The

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duke and prince Lewis finding it impracticable to attack the elector in his strong camp, resolved to undertake the siege of Ingolstadt; and for that purpose passed the Paer, near the town of Schrobbenhausen, where they encamped with their left at Closterberg. On the 5th day of August, the elector of Bavaria marched to Biberack, where he was joined by Tallard. He resolved to pass the Danube at Lawingen, to attack prince Eugene, who had followed the French army from the lines of Biehl, and lay encamped at Hochstadt. Next day, however, he made a motion that disappointed the enemy. Nevertheless, they persisted in their design of passing the Danube, and encamping at Blenheim. The allies resolved, that prince Lewis should undertake the siege of Ingolstadt, whilst prince Eugene and the duke should observe the elector of Bavaria. Advice being received that he had actually crossed the Danube at Lawingen, the duke of Marlborough joined the forces of prince Eugene, at the camp of Munster, on the eleventh day of August, prince Lewis having by this time marched off towards the place he intended to besiege. Next day the duke of Marlborough and prince Eugene observed the posture of the enemy, who were advantageously posted on a hill near Hochstadt, their right being covered by the Danube, and the village of Blenheim, their left by the village of Lutzingen, and their front by a rivulet, the banks of which were steep, and the bottom marshy. Notwithstanding these difficulties, the generals resolved to attack them immediately rather than lie inactive, until their forage and provision should be consumed. They were moreover stimulated to this hazardous enterprize, by an intercepted letter to the elector of Bavaria, from marechal Villeroy, giving him to understand, that he had received orders to ravage the country of Wirtemberg, and intercept all communication between the Rhine and the allied army. The dispositions being made for the attack, and the orders communicated to the general officers, the forces advanced into the plain on the thirteenth day of August, and were ranged in order of battle. The cannonading began about nine in the morning, and continued on both sides till one in the afternoon. The French and Bavarians amounted to about sixty thousand men. Marechal Tallard commanded on the right, and posted seven and twenty battalions with twelve squadrons in the village of Blenheim, supposing that there the allies would make their chief effort:

effort: their left was conducted by the elector of Bavaria, assisted by Marfin, a French general of experience and capacity. The number of the confederates did not exceed five and fifty thousand: their right was under the direction of prince Eugene, and their left commanded by the duke of Marlborough. At noon the action was begun by a body of English and Hessians, under major-general Wilkes, who having passed the rivulet with difficulty, and filed off to the left in the face of the enemy, attacked the village of Blenheim with great vigour, but were repulsed after three successive attempts. Meanwhile, the troops in the centre, and part of the right wing, passed the rivulet on plakhs in different places, and formed on the other side without any molestation from the enemy. At length, however, they were charged by French horse, with such impetuosity, and so terribly galled in flank by the troops posted at Blenheim, that they fell in disorder, and part of them repassed the rivulet; but a reinforcement of dragoons coming up, the French cavalry were broke in their turn, and driven to the very hedges of the village of Blenheim. The left wing of the confederates being now completely formed, ascended the hill in a firm compacted body, charging the enemy's horse, which could no longer stand their ground, but rallied several times as they gave way. Tallard, in order to make a vigorous effort, ordered ten battalions to fill up the intervals of his cavalry. The duke perceiving his design, sent three battalions of the troops of Zell to sustain his horse. Nevertheless, the line was a little disordered by the prodigious fire from the French infantry, and even obliged to recoil about sixty paces; but the confederates advancing to the charge with redoubled ardour, routed the French horse, and their battalions being thus abandoned, were cut in pieces. Tallard having rallied his broken cavalry behind some tents that were still standing, resolved to draw off the troops he had posted in the village of Blenheim, and sent an aid-de-camp to Marfin, who was with the elector of Bavaria on the left, to desire he would face the confederates with some troops to the right of the village of Oberklau, so as to keep them in play, and favour the retreat of the forces from Blenheim. That officer assured him, he was so far from being in a condition to spare troops, that he could hardly maintain his ground. The fate of the day was now more than half decided. The French cavalry being vigorously attacked in flank

were totally defeated. Part of them endeavoured to gain the bridge which they had thrown over the Danube between Hochstadt and Blenheim; but they were so closely pursued, that those who escaped the slaughter threw themselves into the river, where they perished. Tallard being surrounded, was taken near a mill behind the village Sonderen, together with the Marquis de Montperoux, general of horse, the major-generals De Seppeville, De Silly, De la Valiere, and many other officers of distinction. Whilst these occurrences passed on the left wing, Marfin's quarters at the village of Oberklau, in the centre, were attacked by ten battalions, under the prince of Holstein-beck, who passed the rivulet with undaunted resolution; but before he could form his men on the other side, he was overpowered by numbers, mortally wounded, and taken prisoner. His battalions being supported by some Danish and Hanoverian cavalry, renewed the charge, and were again repulsed; at length, the duke of Marlborough in person brought up some fresh squadrons from the body of reserve, and obliged the enemy to retire. By this time, prince Eugene had obliged the left wing of the enemy to give ground, after having surmounted a great number of difficulties, sustained a very obstinate opposition, and seen his cavalry, in which his chief strength seemed to lie, three times repulsed. The duke of Marlborough had no sooner defeated the right wing, than he made a disposition to reinforce the prince, when he understood from an aid-de-camp, that his highness had no occasion for assistance, and that the elector, and Monsieur de Marfin, had abandoned Oberklau and Lutzingen. They were pursued as far as the villages of Morfelingen and Teiffenhoven, from whence they retreated to Dillingen and Lawingen. The confederates were now masters of the field of battle, and surrounded the village of Blenheim, in which, as we have already observed, seven and twenty battalions and twelve squadrons were posted. Seeing themselves cut off from all communication with the rest of their army, and despairing of being able to force their way through the allies, they capitulated about eight in the evening, laid down their arms, delivered their colours and standard, and surrendered themselves prisoners of war, on condition, that the officers should not be rifled. This was one of the most glorious and complete victories that ever was obtained. Ten thousand French and Bavarians were left

dead on the field of battle; the greater part of thirty squadrons of horse and dragoons perished in the river Danube; thirteen thousand were made prisoners; one hundred pieces of cannon were taken, with twenty-four mortars, one hundred and twenty-nine colours, one hundred and seventy-one standards, seventeen pair of kettle-drums, three thousand six hundred tents, four and thirty coaches, three hundred laden mules, two bridges of boats, fifteen pontoons, fifteen barrels and eight casks filled with silver. Of the allies, about four thousand five hundred men were killed, and about eight thousand wounded or taken. The loss of the battle was imputed to two capital errors committed by marechal Tallard; namely, his weakening the centre, by detaching such a number of troops to the village of Blenheim, and his suffering the confederates to pass the rivulet, and form unmolested. Certain it is, these circumstances contributed to the success of the duke of Marlborough, who rode through the hottest of the fire with the calmest intrepidity, giving his orders with that presence of mind and deliberation which were so peculiar to his character. When he next day visited Tallard, he told that general, he was sorry such a misfortune should happen personally on one for whom he had a profound esteem. The marechal congratulated him on having vanquished the best troops in the world; a compliment to which the duke replied, that he thought his own the best troops in the world, seeing they had conquered those upon whom the marechal had bestowed such an encomium.

BLEYME, in farriery, an inflammation in a horse's hoof, occasioned by blood petrified in the inner part of the coffin towards the heel, between the sole and the coffin-bone.

BLIGHT, There is nothing in the business of gardening which requires more of our serious attention than the endeavouring to prevent or guard against this great enemy of gardens.

In order, therefore, to remedy this evil, it will be necessary first to understand the true causes of blights, and, although many curious persons have attempted to explain the causes of them, yet very few of them have yet come near the truth, except the reverend and learned Dr. Hales, who hath, in his curious book, intitled *Vegetable Staticks*, given us some accurate experiments upon the growth and perspiration of plants; together with the various effects the air has

upon vegetables; that by carefully attending thereto, together with diligent observations, we need seldom to be at a loss how to account for the causes of blights whenever they may happen.

These are often caused by a continued easterly wind, for several days together, without the intervention of showers, or any morning dew, by which the perspiration of the tender blossoms is stopped; so that, in a short time, their colour is changed, and they wither and decay; and if it so happens, that there is a long continuance of the same weather, it equally affects the tender leaves; for their perspiring matter is hereby thickened, and rendered glutinous, closely adhering to the surfaces of the leaves, and becomes a proper nutriment to those small insects, which are always found preying upon the leaves and tender branches of fruit-trees, whenever this blight happens.

The best remedy for this distemper that I have yet known to succeed, is, gently to wash and sprinkle over the trees, from time to time, with common water; that is, such as hath not had any thing steeped in it, and the sooner this is performed, whenever we apprehend danger, the better; and, if the young and tender shoots seem to be much infested, wash them with a woollen cloth, so as to clear them, if possible, from all this glutinous matter, that their respiration may not be obstructed; and if we place some broad flat pans or tubs of water near the trees, that the vapours exhaled from it may be received by the trees, it will keep their tender parts in a ductile state, and greatly help them; but whenever this operation of washing the trees is performed, it should be early in the day, that the moisture may be exhaled before the cold of the night comes on; especially if the nights are frosty: nor should it be done when the sun shines very hot upon the wall, which would be subject to scorch up the tender blossoms. Mr. Whittingham, a celebrated nursery-man of Coventry, says, the smoke of tobacco, conveyed pretty briskly on trees in this state, will totally extirpate such destructive insects, and preserve the fruits.

Another cause of blights in the spring is, sharp hoary frosts, which are often succeeded by hot sun-shine in the day time; which is the most sudden and certain destroyer of fruits that is known: for the cold of the night starves the tender parts of the blossoms, and the sun rising hot upon the walls before the moisture

sture is dried from the blossoms, which being in small globules, collect the rays of the sun, a scalding heat is therefore acquired, which scorches the tender flowers, and other parts of the plants.

But there is another sort of blight, against which it is very difficult to guard our fruit-trees; this is sharp pinching frosty mornings, which often happens at the time when the trees are in flower, or while the fruit is very young, and occasion the blossoms or fruit to drop off: and sometimes the tender parts of the shoots and leaves are greatly injured thereby.

The only method yet found out to prevent this mischief, is by carefully covering the walls, either with mats, canvas, reeds, &c. which being fastened so as not to be disturbed with the wind, and suffered to remain on during the night, by taking them off every day, if the weather permits, is the best and surest method that hath yet been used in this case. Care must be taken, that the trees remain not too long covered: and though the expence of it may to some seem very great, yet, if these coverings are fixed near the upper part of the wall, and are fastened to pulleys, so as to be drawn up, or let down, it will be soon and easily done; and the success will sufficiently pay the trouble.

But there is another sort of blight that sometimes comes later in the spring, viz. in April or May, which is very often destructive to orchards, and open plantations, and against which we know no remedy. This is what is called a fire-blast, which, in a few hours, hath not only destroyed the fruit and leaves, but many times parts of trees, and sometimes whole ones have been killed by it.

This is supposed to be effected by volumes of transparent flying vapours, which, among the many forms they revolve into, may sometimes approach so near to an hemisphere, or hemicylinder, either in their upper or lower surfaces, as thereby to make the beams of the sun converge enough to scorch the plants or trees they fall upon, in proportion to the greater or less convergency of the sun's rays.

Blasts also may be occasioned by the reflections of the clouds, as well as by the abovementioned refraction of dense transparent vapours.

Against this enemy to fruits, &c. as hath been already said, there is no absolute security; but if we allow a greater distance between the trees, and make

choice of clear healthy situations, that the air may freely pass between the trees, to dissipate the vapours before they are formed into volumes, whereby the circumambient air will be more clear and less subject to injuries; as also the fruits which are produced in this clearer air, will be much better tasted than those which are surrounded with a thick rancid air; for as fruits are often in a respicing state, so they consequently, by imbibing a part of these vapours, are rendered crude and ill-tasted: which is often the case with a great part of our fruits in England. *Müller's Gard. Diet.*

BLIND, deprived of sight. See **BLINDNESS**.

BLIND is also used in speaking of vessels which are not perforated. Thus the chymists say, a blind alembic; that is, one which has no aperture. A tube is said to be a blind one, when it is closed at top.

Pore-BLIND, or **Pur-BLIND**, is said of a person who is very short sighted.

Moon-BLIND, denotes horses that lose their sight at certain times of the moon; to cure which take half an ounce of lapis calaminaris; heat it red-hot and quench it in a quarter of a pint of plantain-water, or white-wine: to this add half a dram of aloes, and a spoonful of camphor in powder; and letting them dissolve, drop part of it into the horse's eye.

BLIND, among traders, a kind of false light in their warehouse and shops, to prevent too great light from diminishing the lustre of their linens and stuffs.

BLIND, or **BLINDS**, among mineralists, a kind of lead marcasite; by our miners called mock-ore, mock-lead, and wild-lead.

BLINDS, or **BLINDES**, in the art of war, a sort of defence commonly made of osiers, or branches interwoven, and laid across between two rows of stakes, about five feet and a half high, and four or five feet asunder; used particularly at the heads of trenches, when they are extended in front towards the glacis, serving to shelter the workmen, and prevent their being over-looked by the enemy.

BLINDNESS, a total privation of sight. The causes of blindness are various, proceeding from cataracts, gutta serena, &c. There are also periodical blindness, as a defect of sight in some towards night, in others only in the day; the former of which is termed nyctalopia; the latter, hemeralopia. See **NYCTALOPIA**, &c.

BLINDNESS, in farriery. See **EYE BLOCKS**,

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BLOCKS, in naval affairs, little machines for the ropes to run in, which are so situated among the rigging as to govern the most necessary mechanism aloft, such as hoisting, lowering, traversing, or gathering or brailing up the sails by hauling on certain ropes on deck.

BLOCKADE, in the art of war, the blocking up a place, by posting troops at all the avenues leading to it, to keep supplies of men and provisions from getting into it; and by these means proposing to starve it out, without making any regular attacks.

BLOMARY, or **BLOOMARY**, in metallurgy, the first forge through which iron passes, after it is melted out of the ore.

BLOOD, *Sanguis* a red liquor circulating through the arteries, veins, and other vessels of animal bodies; and serving for the support of life, and nourishment of all their parts.

Blood is the great source from whence all the other liquors of the body are derived; for the origin of which, see **SANGUIFICATION**.

Recent blood is equally fluid, and in taste somewhat saline. Viewed by a microscope, it appears composed of numerous red globules swimming in a transparent fluid.

On standing for a little time, it separates into a thick crassamentum, and fluid serum.

The serum of blood is more saline than the crassamentum, and does not so speedily putrefy. It freezes with somewhat more difficulty than pure water, and its aqueous part evaporates, by a gentle warmth, somewhat more readily, leaving about one-twelfth the weight of the serum of a solid yellowish pellucid matter. Exposed to a heat a little greater than that of the human body, it coagulates into a solid mass, without any considerable evaporation. Both this coagulum, and the inspissated serum, are readily inflammable in the fire, not dissoluble in water, or in spirit of wine, in acid, or in alkaline liquors.

BLOOD, in medicine, claims the most attentive regard of physicians. An excess of its quantity produces a plethora, lethargy, &c. Fevers are the consequence of its too rapid motion, and obstructions, of its viscosity and languor.

The too great heat and viscosity of the blood, are its prevailing disorder in a country like this, where people live high, and drink hot inflammable liquors. Besides temperance, and using water as be-

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verage, the milder preparations of mercury contribute greatly to cool and dilute the blood: such are *æthiops* and *cinnabar*, if given in moderate doses, so as not to affect the stomach or excite a salivation.

Thickness of the blood, is another distemperature, proceeding from a plethora, and diminution of its motion; from whence arise obstructions, stagnations, hypochondriac and hysteric affections, &c. The incubus, or night-mare, is also owing to the same cause.

* **BLOOD**, the circulation of, through the lungs first made public by M. Serretus, a French physician in 1553. General circulation of the blood fully discovered by Dr. Harvey, 1628.

Spitting of BLOOD, is cured by copious bleeding every third day, to the fourth time. Gentle purging is likewise recommended; and for appeasing the commotion of the blood, spirit of vitriol, but more especially the tincture of roses made therewith. A milk diet is also preferable to any other; and after the cure is completed, it will be necessary, by way of prevention, to bleed once in six months for several years together.

BLOOD, in farriery, a distemper in the backs of cattle, which will make a beast go as if he drew his head aside, or after him. In order to cure it, you should slit the length of two joints under his tail, and so let him bleed well; but if he bleeds too much, knit his tail next the body, and then bind salt and nettles bruised into it.

BLOOD-SPAVIN. See **SPAVIN**.

BLOOD-STONE. See **HÆMATITES**.

BLOODY-FLUX. See **FLUX** and **DYSENTERY**.

BLOSSOM, denotes the flower of plants, more especially of fruit-trees. See **BOTANY** and **FLOWER**.

BLOSSOM, or **PEACH-COLORED**, in the manage, a term applied to a horse that has his hair white, but intermixed all over with forrel and bay hairs. Such horses are so insensible, and hard both in the mouth and the flanks, that they are scarce valued; besides they are apt to turn blind.

BLOW-PIPE, among jewellers, &c. a glass tube, of a length and thickness at discretion, wherewith they thicken the flame of their lamp, by blowing through it with their mouth. It is used in works of quicker dispatch which do not need the bellows.

BLOWING of a Flower, among florists, an artificial process, in order to bring

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bring a flower to display itself with greater perfection and beauty than it would arrive at in the natural way of blowing.

BLOWING of Glass, one of the methods of forming the divers kinds of work in the glass manufacture.

The workman dips his blowing-pipe into the melting-pot, and by turning it about, the metal sticks to the iron more firmly than turpentine. This he repeats three times, which is called gathering; he then rolls the end of his instrument with the hot metal thereon, on a piece of polished iron, and the workman perceiving there is metal enough on the pipe, claps his mouth immediately to the other end of it, and blows gently through the iron tube, till the metal lengthens like a bladder about a foot: then he rolls it on a marble stone a little while to polish it, and blows a second time, by which means he brings it into the form of a globe, of about eighteen or twenty inches in circumference. This globe may be flattened by returning it to the furnace, and brought into any form by stamp-irons, which are always ready.

For the method of making crown-glass, see **CASTING of GLASS**, &c.

For the manner of sounding glass, and the materials of which it is composed, see **GLASS**.

BLOWING of Tin denotes the melting its ore, after being first burned to destroy the mundic.

BLUBBER, the fat of whales, and other large sea animals, whereof is made train oil. See **OIL**.

BLUE, otherwise called **Azure**, one of the primitive colours of the rays of light.

Turnsole BLUE is used in painting on wood, and is made of the seed of that plant. The way of preparing it is, to boil four ounces of turnsole in a pint and half of water, in which lime has been slacked.

Dyers BLUE, one of their simple or mother colours used in the composition of others. It is made of woad, indigo, and a pastel brought from Normandy. Some dyers heighten their blue, by adding brazil and other woods. See **WOAD** and **INDIGO**.

Prussian BLUE. This blue is next to ultramarine for beauty, if it be used in oil. This colour does not grind well in water.

BLUE Bice is a colour of good brightness, next to Prussian blue, and also a colour of a body, and will flow pretty well in the pencil.

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Saunders BLUE is also of very good use, and may serve as a shade to ultramarine or the blue bice, where the shades are not required to be very deep, and is of itself a pleasant blue, to be laid between the light and shades of such a flower as is of a mazarine blue.

Lacmus, or Litmus BLUE. This is a beautiful blue, and will run in a pen as free as ink. It is made of lacmus, and prepared thus: Take an ounce of lacmus, and boil it in a pint of small-beer wort, till the colour is as strong as you would have it; then pour it off the liquor into a gallipot, and let it cool for use. This affords a beautiful colour, has extraordinary effects, and is a holding colour; if it be touched with aqua-fortis, it immediately changes to fine crimson, little inferior to carmine.

BLUE Japan. Take gum-water, what quantity you please, and white lead a sufficient quantity, grind them well upon porphyry, then takeising-glass size, what quantity you please, of the finest and best smalt a sufficient quantity, mix them well; to which add of your white-lead, before ground, so much as may give it a sufficient body: mix all these together to the consistence of a paint.

BLUEING of metals is performed by heating them in the fire, till they assume a blue colour; particularly practised by the gilders, who blue their metals before they apply the gold and silver leaf.

BLUE-MANTLE, in heraldry, the title of purfivant at arms.

BLUENESS, the quality which denominates a body blue. As to the blueness of the skies, Sir Isaac Newton observes, that all the vapours, when they begin to condense and coalesce into natural particles, become first of such a blueness as to reflect the azure rays before they constitute clouds or any other colour.

BLUNDERBUSS, a short fire-arm with a wide bore, capable of holding a number of bullets at once.

BLUSHING, a suffusion, or redness of the cheeks, excited by a sense of shame, on account of a consciousness of some failing or imperfection.

Blushing is supposed to be produced from a kind of consent or sympathy between the several parts of the body, occasioned by the same nerve being extended to them all. Thus the fifth pair of nerves, being branched from the brain to the eye, ear, muscles of the lips, cheeks and palate, tongue and nose, a thing, seen or heard, that is shameful, affects the cheeks with blushes, driving the blood into their minute

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minute vessels, at the same time it affects the eye and ear. Mr. Derham further observes, upon this subject, that a savoury thing, seen or smelt, affects the glands and parts of the mouth; if a thing heard be pleasing, it affects the muscles of the face with laughter; if melancholy, it exerts itself on the glands of the eyes, and occasions weeping, &c.

BMI, in music, the third note in the modern scale. See **SCALE**.

* **BOADICEA**, a celebrated British queen, who lived in the first century. She was the widow of Prasutagus, king of the Iceni, and having suffered some of the most barbarous indignities from the Romans, who had proceeded to such a pitch of brutality as to cause her to be publicly whipped, and her two daughters ravished; she excited the Britons to a revolt: accordingly, an hundred and twenty thousand of the latter, with Boadicea at their head, attacked the Roman colony, at Camulodunum, and slaughtered seventy or eighty thousand Romans; committing the most shocking and unheard of cruelties. But Suetonius marching against them with about ten thousand men, a bloody battle ensued, in which eighty thousand Britons were slain, and the Romans gained the victory, with a very considerable loss. This battle was fought in the sixty-first year of the Christian æra. This valiant queen, thus disappointed of the completion of her revenge, dispatched herself by poison.

BOARD, a long piece of timber, sawed thin for building and several other purposes. See **TIMBER**.

BOARD, an office under the government. Thus we say, the board of trade and plantation, the board of works, ordnance, &c.

BOARDING, in a naval engagement, a desperate and furious assault made by one ship on another, after having found every other method to reduce her ineffectual: it may be performed in different places of the ship, according to their circumstances and situation, by the assailant detaching a number of men armed with pistols and cutlasses on the decks of his antagonist, who stands in the same predicament with a city stormed by the besiegers. This expedient, however, is rarely attempted by king's ships, which generally decide the combat without grappling each other; but chiefly practised by privateers, which bearing down on the enemy's quarter or broadside, drop from the bowsprit, which projects over

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the defendant's deck, an earthen shell, called a stink-pot, charged with fiery and suffocating combustibles, which immediately bursts, catches fire, and fills the deck with insufferable stench and smoke: in the middle of the confusion thus occasioned, the privateer's crew rush on board, under cover of the smoke, and easily over-power the astonished enemy; unless they have close quarters to which they can retreat and beat them off the deck. See **BOWSPRIT**, **CLOSE-QUARTERS**. To prevent boarding, a high rope-netting, extended along the shrouds from one end of the ship to the other, has been frequently used; but fraising a battalion with the fixed bayonets of the marines is, perhaps, more expedient.

BOATSWAIN of a *Ship*, the officer appointed to take care of the sails, cables, rigging, boats, and anchors, to summon the crew to their duty, and direct them in the necessary business of the ship, and to punish delinquents.

BOB, a term used for the ball of a short pendulum.

BOBBIN, a short piece of wood turned in the form of a cylinder, with a little border jutting out at each end, bored through to receive a small iron pivot. It serves to spin with the spinning wheel, or to wind thread, worsted, hair, cotton, silk, gold, and silver.

BOB-STAY, in naval affairs, a double rope passing through a ship's stem, or prow, and reaching up to the middle of the bow-sprit, to which it is drawn very tight to secure and keep steady the bowsprit, which is also strengthened by shrouds on each side.

* **BODMIN**, a borough town of Cornwall, that has a market on Saturdays, which is very considerable for corn and provisions, and four fairs, on January 25, Saturday after Mid-Lent-Sunday, Wednesday before Whit-Sunday, and December 6, for horses, oxen, sheep, cloth, and a few hops. It is seated between two high hills, and chiefly consists of one long street. It is a corporation, governed by a mayor and his brethren, and sends two members to parliament. It is thirty-six miles north-east of Falmouth, and two hundred and thirty-two west of London. Long. 4. 5. W. Lat. 50. 32. N.

BODY, in philosophy, a solid, extended, palpable substance; of itself merely passive, and indifferent either to motion or rest, but capable of any sort of motion, and of all figures and forms.

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"We are as far, says Mr. Locke, from the idea of substance of body, by the complex idea of extended, figured, coloured, and all other sensible qualities, which is all we know of it, as if we knew nothing at all; nor after all the acquaintance and familiarity, which we imagine we have with matter, and the many qualities men assure themselves they perceive and know in bodies, will it, perhaps upon examination, be found that they have any more or clearer primary ideas belonging to body, than they have belonging to immaterial spirit. The primary ideas we have peculiar to body, as contradistinguished to spirit, are, the cohesion of solid, and consequently separable parts; and a power of communicating motion by impulse. These are the original ideas proper and peculiar to body; for figure is but the consequence of finite extension."

BODY, among painters, as to bear a body, a term signifying that the colours are of such a nature, as to be capable of being ground so fine, and mixing with the oil so entirely, as to seem only a very thick oil of the same colour.

BODY, in the art of war, a number of forces, horse and foot, united and marching under one commander.

Main BODY of an Army, the troops encamped in the center between the two wings, and generally infantry; the other two bodies are the van-guard and the rear-guard: these being the three into which an army, ranged in form of battle, is divided.

* **BOEDROMIA**, *Boedromia* in Grecian antiquity, an Athenian festival, in memory of Ion, the son of Xuthus, who came to the assistance of the Athenians in the reign of king Erechtheus, when they were invaded by Eumolpus, the son of Neptune: or, according to Plutarch, in memory of a victory obtained by Theseus, against the Amazons, in the month Boedromion.

* **BOEHMEN (JACOB)** a famous visionary, who pretended to receive frequent visions, or as he himself expresses it, to be wrapt, by the divine drawing, in which he says, he remained one time seven whole days, in the highest joy. His education extended no farther than to read and write, and was bred a shoe-maker.

* **BOERHAAVE (HERMAN)** one of the most learned physicians since Hippocrates, was born at Voorhout, a village near Leyden, the 31st of December, 1668. Having acquired great knowledge in the learned languages, and in mathematics,

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he joined the study of physic to philosophy and theology, beginning with Hippocrates, whose works he digested in such a manner as to render them perfectly familiar to him. Afterwards he made himself acquainted with the most authentic modern authors, particularly with our Sydenham, to whose name he usually prefixed the epithet Immortal. He next applied to chemistry and botany; but still intended to engage in the ministry: however, going from Harderwick in Guelderland, where he had taken the degree of doctor of physic, in order to return to Leyden, he met with an invincible obstruction to his mounting the pulpit; for being in a passage-boat, some discourse happening to be started on the doctrine of Spinoza, he attempted to defend him in some particulars; upon which a passenger raised a report that Boerhaave was become a Spinozist. The great man finding that such prejudices gained ground, was unwilling to risque the refusal of a licence for the pulpit, when he had so fair a prospect of rising by physic. He therefore applied wholly to the study of medicine, and gradually rose from being lecturer to the highest dignity, the rectorship of the university of Leyden, becoming, in the mean time, a member of the Royal Society of London, and of the Academy of Sciences at Paris. He was remarkable for his piety, his modesty, his humanity, and his private acts of beneficence; yet he amassed great wealth, and died on the 23d of September, 1738, in the sixty-ninth year of his age. He wrote variety of pieces which are all greatly esteemed.

BOG, a quagmire, covered indeed with grass, but not solid enough to support the weight of the body; in which sense, it differs only from marshes or fens, as a part from the whole; some even restrain the term bog to quagmires pent up between two hills: whereas fens lie in champaign and low countries, where the descent is very small. To drain boggy lands, a good method is, to make trenches of a sufficient depth to carry off the moisture; and if these are partly filled up with rough stones, and then covered with thorn bushes and straw to keep the earth from filling up the interstices, a stratum of good earth and turf may be laid over all; the cavities among the stones will give passage to the water, and the turf will grow at top, as if nothing had been done. See *FEN*.

* **BOHEMIA**, a kingdom of Europe, usually deemed a part of Germany. It

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comprehends Proper Bohemia, Moravia, Lusatia, and Silesia. It is bounded on the east by Poland, on the north by Brandenburg; on the west by Saxony, Misnia, and Culembach; on the south by Bavaria, Austria, and a part of Hungary. Proper Bohemia is about one hundred and ninety-five miles in length, and one hundred and fifty in breadth. Bohemia taken in general, is one of the highest countries in Europe, for there is no river enters into it, and yet many pass out, of which the most considerable are the Elbe, the Oder, the Vistula, and the Morava. The air is cold and unwholesome, for they have more epidemical diseases there than in the neighbouring countries. There are mines of silver, copper, lead, and even some veins of gold. The majority of the people are Roman Catholics, but there are many Protestants after the confession of Augsburg, some Calvinists, and Moravians. There are Jews at Prague, but they pay heavy taxes for living there. The Bohemians are lively, robust, hardy, but luxurious in their eating and drinking.

BOHEMIA PROPER, is the most considerable part of the kingdom of Bohemia, and lies to the west of the other parts. It is surrounded by high mountains, and is watered by several rivers, the principal of which are the Elbe, the Moldaw, the Egerand, and the Miza. It is bounded on the west by Franconia and the Upper Palatinate, on the east by Silesia and Moravia, on the south by Bavaria and Austria, and on the north by Misnia and Lusatia. It is divided into eighteen circles.

Bohemia Proper is the most fruitful part of the whole kingdom, and for that reason exports a great deal of corn. The rivers are stored with fish; the woods with wild fowl, deer, and wild boars; the pasture grounds are covered with tame cattle; in the mines are gold, silver, iron, copper, tin, precious stones, as amethysts and rubies.

BOHOL, one of the Philippine Islands, in Asia, lying to the north of the island of Mindanao, and south-west of Leyte. Long. 122. 5. E. Lat. 10. 0. N.

BOI, commonly called *Il Siracusano*, the Syracusan, was a famous chess player at the court of Spain, under king Philip II. from whom he received several fine presents; he also received some from Urban VIII. who was so pleased with his skill, that he offered him a bishopric, which he refused. Having the misfortune to be taken by corsairs, and to see

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himself reduced to slavery, he found the way, by means of his skill at this game, to make their savage tempers tractable; they admired him, treated him with humanity, and demanded no other ransom than the instructions he gave them for a few months in playing at chess.

BOIANO, a town of Italy in the kingdom of Naples, and county of Molise, with a bishop's see. It is seated at the foot of the Appenines, near the river Terno, ten miles south of Molise, thirty north west of Benevento, and forty-five north of Naples. Long. 14. 38. E. Lat. 41. 30. N.

BOIARDO (MATTEO MARIA) of Ferrara, count of Scandiano, celebrated for his Italian poems, lived in the fifteenth century, and died in 1494. His principal work is his *Orlando innamorato*. His Latin Eclogues and Sonnets are also much admired.

BOIGUACU, the largest of all serpents, being from twenty-four to forty feet long, and thick in proportion. It is found in the East and West Indies, where the Europeans, as well as the natives, are extremely fond of it as food.

BOILEAU (GILES) member of the French academy, and the eldest brother of the celebrated Boileau Despreaux, wrote a Translation of Epictetus, two Dissertations against Menage and Castor, and some other works. He died in 1669, aged thirty-eight.

BOILEAU (JAMES) brother of the former, and a learned doctor of the Sorbonne, was born at Paris, on the 16th of March, 1635. After having been dean and grand vicar of Sens under M. de Goudrin, he returned to Paris in 1694, and was made canon of the holy chapel. He died when dean of the faculty of divinity, on the first of August, 1716. He published a great number of curious works, the principal of which are, 1. *The Decretal super specula de Magistris*. 2. *De Antiquo jure Presbyterorum, in regimine Ecclesiastico*. 3. *De Antiquis & majoribus Episcoporum causis*, in quarto. 4. *An History of Auricular Confession*, in Latin, &c.

BOILEAU (NICHOLAS) surnamed Despreaux, one of the most celebrated French poets, was the son of Giles Boileau, secretary to the great chamber of parliament, and was born in 1636, at Crone, a small village, where his father had a country house, near Villeneuve St. Georges. After he had gone through a course of polite literature and philosophy, he engaged in the study of the law, in which he made such progress, that on December

cember 4, 1656, he was admitted an advocate; but he could not adapt himself to a science which often obliges those who follow it to clothe falshood in the garb of truth. He resolved therefore to take another course, and giving a loose to his passion for the belles lettres, and especially for poetry, he proceeded solely under his own conduct, and took possession of one of the foremost places on the French Parnassus. The public gave his works the encomium they deserved, and Lewis XIV. who always loved to encourage the sciences and polite literature, was not only pleased to have Mr. Boileau's works read to him constantly as he composed them, but settled a yearly pension of two thousand livres upon him, and gave him the privilege of printing all his works. He was afterwards chosen a member of the French academy, and also of the Academy of Inscriptions and Medals. This great man, who was as remarkable for his integrity, his innocence, and diffusive benevolence, as for the keenness of his satires, died on the 2d of March, 1711, in the seventy-fifth year of his age.

BOILING, or EBULLITION, in physics, the agitation of a fluid body, arising from the application of fire, &c. The phenomena of boiling may be thus accounted for: the minute particles of the fuel, being detached from each other, and impelled *in orbem* with a great velocity; that is, being converted into fire, pass the pores of the containing vessel, and mix with the fluid. By the resistance they here meet, their motion is destroyed; that is, they communicate it wholly to the quiescent water: hence arises, at first, a small intestine motion in the water, and from the continued action of the first cause, the effect is increased, and the motion of the water continually accelerated; so that, by degrees, it becomes sensibly agitated: but now the particles of fire, sticking on those in the lowest surface of the water, will not only give them an impulse upwards, contrary to the laws of equilibrium, but will likewise render them specifically lighter than before, so as to determine them to ascend according to the laws of equilibrium; and this, either by inflating them into little vesicles, by the attraction of the particles of water around them, or by breaking and separating the little spherules of water, and so increasing the ratio of their surface to their solid content. There will be, therefore, a constant flux of water,

from the bottom to the top of the vessel, and consequently a reciprocal flux from the top to the bottom; that is, the upper and under water will change places: and hence we have the reason of that phenomena of the water being hot at top, sooner than at bottom.

Again, an intense heat will diminish the specific gravity of water, so as not only to make it mount in water, but also in air: whence arise the phenomena of vapour and smoke, though the air, inclosed in the interstices of the water, must be allowed a good share in this appearance; for that air, being dilated, and its spring strengthened by the action of the fire, breaks its prison, and ascends through the water into the air, carrying with it of the contiguous spherules of water, so many as shall hang in its villi, or as can adhere immediately to it.

The particles of the air, in the several interstices of the fluid mass thus expanded and moving upwards, will meet and coalesce in their passage; by which means great quantities of the water will be heaved up and let down alternately, as the air rises up, and again passes from the water; for the air, after coalition, though it may buoy up a great heat of water by its elasticity, while in the water, yet cannot carry it up with itself, into the atmosphere; since, when once got free from the upper surface of the water in the vessel, it will unbend itself in the atmosphere, and so its spring and force become just equal to that of the common unheated air: and hence we see the reason of the principal phenomena of boiling, viz. the fluctuating of the surface of the water.

The ingenious Mr. Amenton has shewn, that water heated to a degree of boiling, will not receive any further heat, how much soever the fire be increased: yet this excellent discovery may receive a considerable improvement from what Mr. Fahrenheit has observed, viz. that the heat of the same boiling water is always regularly greater, by how much the weight of the atmosphere is greater which presses upon its surface: and again, that the same heat of the boiling water diminishes, as the weight of the incumbent atmosphere grows less. Hence, in marking the degree of heat in boiling water, it will be necessary to note the weight of the atmosphere at the same time by the barometer; otherwise no certain measure will be expressed.

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BOLES, a genus of earths, moderately coherent, ponderous, soft, and not stiff and viscid; composed of fine particles, smooth to the touch, easily breaking between the fingers, readily diffusible in water, and freely and easily subsiding from it. Three kinds of boles are ranked among medicinal earths, Armenian, red, and white. That met with in the shops, under the name of Armenian, is not the produce of Armenia, or any of the oriental countries; but, like the others, of different parts of Europe, as Bohemia, Silesia, Saxony, Hungary, Transylvania, France, Norway, &c. The French employ chiefly the bole of Blois. We need not be solicitous about the particular place where any of the boles have been dug, provided they are pure and of good quality.

BOLE Armenian, is of a pale colour, between red and yellow, smooth and slippery to the touch, somewhat glossy, pure from sand or any perceptible gritty matter. It readily crumbles betwixt the fingers, and adheres to the tongue. Softened with water, it forms a smooth paste; diluted with a larger quantity of water, it remains for a considerable time suspended.

Bolē armenic, like most of the other coloured earths, contains a portion of ferruginous matter, to which its colour is owing, and which may be separated by the magnet, after the bole has been calcined with oil or other inflammable matters. It is likewise impregnated with vitriolic acid; and hence, when mixed with nitre or sea-salt, it extricates the acids of those salts in the fire.

This earth is employed medicinally as a styptic, both internally and externally: a virtue which seems to proceed from its ferruginous impregnation: to the antipestilential and alexipharmic qualities, for which it has long been celebrated, it has no pretence; nor have the absorbent ones, which some ascribe to it, any just foundation. It is prepared or purified by washing it over with water; the pure bole remaining suspended a considerable time, so as to be poured off with the liquor, whilst the sandy or other grosser matter remains behind: after the bole has settled from the water, it is moderately dried: formed into rolls or cakes, and afterwards further calcined for use. Some have condemned this method, as depriving the bole of a certain central salt: but this earth contains nothing that water is capable of extracting. **Bolē armenic**, treated with water, remained undiminished in weight; and neither the bole or the water received any sensible alteration.

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Red BOLE. The common sort of this earth is coarser than the Armenian, and participates more largely of iron; hence it is never given internally, unless to cattle.

White BOLE is brought to us ready washed and formed into large rolls or cylindrical globes, not of a chalky whiteness, but rather of an ash-colour. Formerly it came only from Tuscany, or the island Elva: at present it is supplied chiefly from Norway, the island Bornholm, or places nearer home. It differs from the two preceding in containing no manifest iron matter, and consequently in wanting their astringency. It has been recommended as an absorbent; but experiments made upon it with acids, shew that it little deserves that character, any more than the other boles. Some have a method of recovering the lustre of pearls, especially the Scotch ones, by warming them a little over the fire, and rubbing them with powdered white bole. *Newman's Chemistry*.

* **BOLOGNA**, a city of Italy, in the state of the church, and capital of the Bolognese, with an archbishop's see, is one of the ancientest, largest, and finest cities in Italy. It is very well built, and the streets from one end to the other have handsome piazzas, wherein passengers may walk without being incommoded by the sun or rain. It is about six miles in circumference, but is not perfectly round. It is surrounded with very large and agreeable plains, (except on the south side) that produce every thing that is useful and necessary for life. It is seated at the foot of Mount Appennine, which is on the south, and has twelve gates. The river Savona washes its walls, and the rivulet Rheno runs thro' the midst of it, forming streams therein. The tower, called Asinelli, stands in the middle of the city, and is reckoned the highest in Italy, it being six hundred and seventy-six feet in height. Near this tower is the church of St. Petronius, which is one of the largest and most stately in Italy. At a small distance from this beautiful church there is a handsome edifice, wherein the belles lettres are taught, and is the most celebrated university in Italy, especially for the study of the civil law. The cathedral church is well worth the notice of foreigners, as well for the beauty of the structure, as for the fine paintings and rich statues to be seen therein. The church of St. Dominic is one of the most magnificent in Bologna. The chapel dedicated to the honour of this saint is a finished work. The monastery of the Dominicans is not less magnificent than the church, where one hundred and twenty

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twenty monks live in a splendid manner. The library and the cellar are worth observation; for the former is full of books, and the latter of exquisite wines. There are no less than four hundred silk mills in this city, besides which it carries on a trade in wax, hemp, flax, hams, sausages, wash-balls, snuff, and perfumes. This city is twenty-three miles south-west of Modena, and one hundred and forty-five north-by-west of Rome. Long. 11. 30. E. Lat. 44. 27. N.

BOLONIAN, belonging to Bologna. Hence,

BOLONIAN Stone, is a sulphureous kind of stone, about the bigness of a walnut, found near Bologna; which, when duly prepared by calcination, makes a species of phosphorus. See PHOSPHORUS.

BOLSTERS, in naval affairs, a sort of small cushions, stuffed with tarred canvas, laid between the collar, or lower part of the main-stay, and the upper part of the stem, to prevent the stay from being fretted or galled by rubbing when the ship pitches at sea.

BOLSTERS of a Saddle, those parts of a great saddle which are raised upon the bows, both before and behind, to hold the rider's thigh, and keep them in a right posture.

BOLT, among builders, an iron fastening fixed to doors and windows. They are generally distinguished into plate, round, and spring bolts.

BOLTS, in gunnery, are of several sorts, as 1. Trantum bolts that go between the cheeks of a gun-carriage, to strengthen the transoms. 2. Prize bolts, the large knobs of iron on the cheeks of a carriage, which keep the handspike from sliding, when it is pointing up the breech of a piece. 3. Traverse bolts, the two short bolts that, being put one in each end of a mortar carriage, serve to traverse her. 4. Bracket bolts, the bolts that go through the cheeks of a mortar, and by the help of quoins keep her fixed at the given elevation. And, 5. Bed bolts, the four bolts that fasten the brackets of a mortar to the bed.

BOLT of Canvas, in commerce, the quantity of twenty-eight ells.

BOLT-ROPE, in naval affairs, a rope passing round the sail, to which the edges of it are sewed to prevent the sail from tearing: the bottom part of it is called the foot-rope, the sides leeches, and if the sail be oblong or square, the upper part is called head-rope.

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BOLTERS, or **BOULTERS**, a kind of sieves for meal, having the bottoms made of woollen, hair, or wire.

BOLTING, or **BOULTING**, the act of separating the flour from the bran, by means of a bolter.

BOLTING-MILL, a versatile engine for sifting with more ease and expedition. The cloth round this is called the boulder.

BOLUS, an extemporaneous form of a medicine, soft, coherent, a little thicker than honey, the quantity of which is a little morsel or mouthful.

BOLZAS, a sort of ticking which comes from the East-Indies.

BOMB, in military affairs, a large shell of cast iron, having a great vent to receive the fusee, which is made of wood. If no defect is found in the globe, its cavity is filled with whole gun-powder; a little space or liberty is left, that when a fusee or wooden tube, of the figure of a truncated cone, is driven thro' the aperture, and fastened with a cement made of quick-lime, ashes, brick dust, with steel filings, worked together in a glutinous water; or, of four parts of pitch, two of colophony, one of turpentine, and one of wax; the powder may not be bruised. This tube is filled with a combustible matter, made of two ounces of nitre, one of sulphur, and three of gun-powder-dust, well rammed. This fusee, set on fire, burns slowly, till it reaches the gunpowder, which goes off at once, bursting the shell to pieces with incredible violence: whence the use of bombs in besieging towns. Care must be taken, that the fusee be so proportioned, that the gunpowder do not take fire before the shell arrives at the destined place; to prevent which, the fusee is frequently wound round with a wet clammy thread.

BOMB-BATTERY. See BATTERY.

BOMBARDIER, one employed about a mortar. His business is to drive the fusee, fix the shell, load and fire the mortar, and to work with the fire-workers on all sorts of fire works.

BOMBARDING, the act of attacking a city or fortress, by throwing bombs into it, to ruin or set on fire the houses, magazines, &c.

BOMBARDO, a musical instrument much the same as the bassoon, and used as a bass to the hautboy.

BOMBASINE, in commerce, a kind of silk-stuff manufactured at Milan, and thence sent into France and other countries.

BOMBAST, in literary matters, a high stile,

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style made up of hard words, with little or no meaning.

* **BOMBAY**, an island on the west coast of the peninsula on this side the Ganges, in Asia. It formerly belonged to the Portuguese, but was given to England by the marriage of the infants of Portugal with king Charles II. and now belongs to the East-India company. It is chiefly remarkable for its fort or castle, its harbour, and its convenient situation for trade. It is inhabited by several nations, but chiefly English, Portuguese, and Indians, to the number of about fifty thousand. The president of the English factory at Surat is usually governor of this island, who lives in great splendor, and is very nobly attended. The chief town is about a mile in length, wherein all religions are tolerated, as well as in the rest of the island. The Indians have small pagods, which will not hold above nine or ten people. It rains here in June and July without intermission for ten or fifteen days, which puts an end for that time to navigation and travelling by land; after this they become gradually less and less till the middle of September, and then intirely cease till the return of the season the next year; and yet, on the east of the peninsula, on the coast of Coromandel, from April to September, the weather is fair. The trees are green all the year. However, these rains are very useful for the production of rice; for, unless the ground is flat, and well soaked with water, there can be no hopes of a crop. There are a great many venomous creatures in this island, among which the spiders are very large. Bombay is one hundred and thirty miles south of Surat. Long. 73. 0. E. Lat. 19. 0. N.

BOMBUS, in medicine, a resounding and ringing noise in the ear, accounted by Hippocrates a mortal symptom in acute diseases.

BOMBYLIUS, in natural history, the name of the common humble-bee.

BOMBYLOPHAGES, in the history of insects, humble-bee-eater, the name of a fly of the tipula kind, which is larger and stronger than the common kinds, and loving honey, without knowing how to extract it from the flower, it seizes on the humble-bees, and destroys them, in order to get the bag of honey which they contain. It is chiefly found in mountainous places.

* **BONA DEA**, the Good Goddess, in heathen mythology, one of the names of Cybele. Others say, she was a Roman lady, the wife of Faunus, famous for her

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chastity, and after her death was deified. She was worshipped at Rome, and her sacrifices were performed only by matrons, and in so secret manner, that it was no less than death for any man to be present at the assembly.

BONA-FIDES, or **BONA FIDE**, among lawyers, signifies such a thing was done really without either fraud or deceit. A man is said to possess any thing *bona-fide*, who is ignorant of that thing's being the property of another; on the contrary, he is said to possess a thing *mala-fide*, who is conscious of its being the property of another.

BONA-NOTABILIA, such goods as a person dying has in another diocese than that wherein he dies, amounting to the value of five pounds at least: in which case, the will of the deceased must be proved, or administration granted in the court of the archbishop of the province, unless by composition, or custom, any dioceses are authorized to do it, when rated at a greater sum.

BONANA, in botany, a genus of plants, also called musa. See **MUSA**.

BONASUS, in zoology, a species of wild ox, very thick and bulky, and furnished with a mane like a horse. It is a very unwieldy animal, being larger than our bull; the horns are but short, and so turned as to be unfit for wounding: the nostrils are wide, and the ears long and broad. The colour of the animal is a deep tawny; only the forehead and the breast are white, and the mane of a darker colour than that of the rest of the body. When pursued, it does not attempt to defend itself with its horns, but kicks, and discharges its dung to a great distance against the pursuers.

BOND, a deed, by which a person obliges himself to perform certain acts: such as to pay a certain sum, or to answer for another, or to serve an apprenticeship with a master. In England, a bond is a deed or obligatory instrument in writing, whereby a person binds himself to another, to pay a sum of money, or to do some other act, as to stand to an award, perform a will, &c. It contains an obligation, with a penalty annexed, and a condition which expressly mentions what money is to be paid, or what other things are to be performed, and the limited time for the performance thereof, for which the obligation is peremptorily binding.

BONE, in anatomy, a hard, brittle, insensible part of the body, affording form and support to the whole machine.

Eminences

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Eminences of a BONE. We understand by these all sorts of risings, prolongations or productions observable on its surface. These are of two kinds; in the first, the risings are continuous with the rest of the bone, and make one piece with it; in the other, they are as it were contiguous only, appearing to be parts added to, or united with, the body of the bone.

The risings of the first kind are termed apophyses, from a Greek word, signifying an excrescence; because they grow or shoot out immediately from the bone itself; such are the sharp eminences of the lower jaw, &c.

The others are named epiphyses, or appendices, because they appear to be parts added to the rest of the bone, and still distinguished from it by the intervention of another softer substance called a cartilage.

External Cavities of a BONE.—Depressions perceivable in the outsides of bones. These are in great numbers; very different from one another, and they are called by different names.

They may however be distinguished into two general kinds; those which receive soft parts, as the cavities which contain the brain, the eyes, the marrow, &c. and those which receive hard parts; that is, where the cavity of one bone contains the eminence of another.

Substance of BONES.—The substance of bones is found on examination to be a texture of solid fibres differently disposed, according to the particular conformation of each bone. These bony fibres are easily distinguished on the surface of the ribs, where they may be separated much after the same manner as we do those of whale-bone or horn. We may likewise discover them by the fissures in bones, which have been long exposed to the sun or air, or any otherwise dried.

The substance of bones is partly compact or solid, partly cellular or spongy, and partly reticular.

The solid part lies chiefly towards the outside of bones, the cellular part towards the inside. The first is most considerable in the large hollow bones, the other in those which have no remarkable cavities.

The solid part is formed by laminae, disposed in different strata. The spongy part consists chiefly of the plates and filaments variously interwoven: the filaments alone form the reticular texture principally observable in the long hollow bones.

Internal Cavities of BONES.—Besides the cavities which appear in examining the external conformation of bones, there

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are others observable in examining their internal structure; which may all be reduced to three kinds, very different from one another.

The first kind comprehends the large internal cavities found chiefly in the middle of the long bones, which are nearly of a cylindrical figure, such as the os humeri, ulna, radius, os femoris, tibia, fibula, the bones of the metacarpus, metatarsus, fingers and toes. In these the cavities are proportionable to the length and thickness of the bones.

The second kind of internal cavities consists of the cells and intervals in the cellular portion of bones.

Of these some are large, small, single, double, or more compounded, and of these last some contain several small ones within them. Others are round, flat, oblong, tubular, oval, angular, square, irregular, &c. and of these the oblong and tubular lie in directions nearly parallel to the length of the bone. Almost all these cells communicate with one another in different manners.

The third sort of internal cavities comprehends the ducts and pores found in the substance of bones. *Winslow's Anatomy.*

BONIS NON AMOVENDIS, in law, a writ directed to the sheriffs of London, &c. charging them, that a person against whom judgment is obtained, and prosecuting a writ of error, be not suffered to remove his goods until the error is determined.

BONITO, a beautiful fish, of the tunny kind, and called by some curvata pinima. It is a large sea fish, with a long, broad, and thick body: its eyes are large, as also its gills; and the greater part of its body is free from scales.

* **BONNER (EDMUND)** bishop of London, was born at Henley, in Worcestershire, and was the son of a poor man of that place. He was educated at the university of Oxford, where he studied civil and canon law; but was less distinguished by his learning than by his dexterity and skill in the management of affairs, and for this he was taken notice of by cardinal Wolfey, who made him his commissary for the faculties. After the cardinal's death, he insinuated himself into the good graces of king Henry VIII. and became one of his chaplains, a favourer of the Lutherans, a promoter of that king's divorce from queen Catharine of Spain, and of all his proceedings in abrogating the pope's supremacy. He insinuated himself into the favour of Thomas Cromwell, secretary of state, by whose recommendation he

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He was employed as ambassador at several courts, and particularly in 1533, was sent to pope Clement VII. then at Marzeilles, upon the excommunication decreed at Rome against king Henry VIII. on account of his divorce; and to deliver that king's appeal to the next general council lawfully called. He was also employed in embassies to the emperor and the kings of Denmark and France; and in 1538, while he was ambassador in the last mentioned kingdom, was nominated to the bishopric of Hereford; but before his consecration was translated to the see of London, in 1539. During that reign he appeared zealous in promoting the Reformation in this kingdom, though there is great reason to suspect that he acted all this while against his conscience, and was a thorough papist in his heart; for soon after the accession of Edward VI. he scrupled to renounce the authority of the bishop of Rome, for which he was committed prisoner to the Fleet; but was soon after released on his recanting his protestation. He now outwardly complied with the methods taken to advance the Reformation; though he privately used all possible means to obstruct it. However, being afterwards charged with neglecting the observance of the king's injunctions, he was committed to the Marshalsea, and deprived of his bishopric; but he soon most severely revenged himself on his enemies; for after the accession of queen Mary he was restored to his bishopric, and made vicegerent and president of the convocation; he then visited his diocese in order to root up all the seeds of the Reformation, and set up the mass again at St. Paul's before the act for restoring it was passed. He was in the commission for turning out some of the reformed bishops, and being known to be of a fierce and cruel disposition, bishop Gardiner, in 1555, left wholly to him the condemning and burning of heretics, when, during that and the three following years, he most inhumanly committed to the flames, and otherwise destroyed, hundreds of innocent persons, for refusing to embrace the gross errors of popery. However, at queen Elizabeth's accession to the throne, he had the confidence to go and meet her at Highgate, with the rest of the bishops; but she looked on him as so much defiled with blood, that she could not shew him any mark of her favour; however, he remained for some months unmolested; but being called before the privy-council, on the 30th of May 1559, and refusing to take the oath of allegiance and supremacy,

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he was a second time deprived of his bishopric, and sent to the Marshalsea, where he lived several years, and died there on the 5th of September, 1569.

BONNET, in naval affairs, an additional part to be laced to the bottom of a sail in light winds, and taken off again in stormy weather. They are used only in small vessels:

BONNET, in fortification, a small work, consisting of two faces, having only a parapet with two rows of palisades, of about ten or twelve feet distance: it is generally raised before the salient angle of the counterescarp, and has a communication with the covered-way, by a trench cut through the glacis, and palisades on each side.

BONNET A'PRETRE, or *Priest's BONNET*, in fortification, an out-work, having at the head three salient angles, and two inwards. It differs from the double tenaille only in this, that the sides, instead of being parallel are like the queue d'aronde, or swallow's tail; that is narrowing or drawing close at the gorge, and opening at the head.

BONNY, in mineralogy, a name given by our miners to a bed of ore found in many places in hills, of five or six fathom deep, and two or somewhat less than that, in thickness, in the largest fort; but there are smaller, to those of a foot long. They differ from the squats only in being round beds of ore, whereas the squats are flat. See **SQUAT**.

* **BONUS EVENTUS**, in heathen mythology, one of the *Dii Consentes*, whose statue had a patera in his right hand, and in his left an ear of corn. This was one of the emblematical deities to whom the Romans addressed their petitions for success in their undertakings. His statue was placed in the capitol, together with his wife or sister *Bona Fortuna* or Good Fortune.

BONZES, Indian priests, who, to distinguish themselves from the laity, wear a chaplet round their necks, consisting of an hundred beads, and carry a staff, at the end of which is a wooden bird; they live upon the alms of the people, and yet are very charitably disposed, maintaining several orphans and widows out of their own collections. The Tonquinese have a pagod, or temple, in each town, and every pagod has at least two bonzes belonging to it; some have thirty or forty. The bonzes of China are the priests of the Fohists, or sect of Fohi; and it is one of their established tenets, that there are re-

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wards allotted for the righteous, and punishments for the wicked, in the other world; and that there are various mansions, in which the souls of men will reside, according to their different degrees of merit.

BOOBY, a bird of prey, nearly allied to the goose-kind, common about Jamaica.

BOOK, *Liber*, the composition of a man of wit or learning, to communicate something he has invented, experienced, or collected, to the public, and thence to posterity; being also of a competent length to make a volume. In this sense, a book is distinguished from a pamphlet, by its greater length; and from a tome, or volume, by its containing the whole writing. According to the ancients, a book differed from an epistle, not only in bulk, but in that the latter was folded, and the former rolled up; not but that there are divers ancient books now extant, under the names of epistles.

Origin of BOOKS. We have nothing that is clear on that subject. The books of Moses are doubtless the oldest books now extant; but there were books before those of Moses, since he cites several. Of profane books, the oldest extant are Homer's poems, which were so even in the time of Sixtus Empiricus; though we find mention in Greek writers of several others prior to Homer, as Hermes, Orpheus, Daphne, Horus, Linus, Musæus, Palamedes, Zoroaster, &c. but of the greater part of these there is not the least fragment remaining; and the remaining pieces, which go under their names, are generally held, by the learned, to be supposititious. Among the Greeks, it is to be observed, the oldest books were in verse, which was prior to prose. Herodotus's history is the oldest book extant of the prosaic kind.

Materials of BOOKS. Books were first written on stones, witness the Decalogue given to Moses: then on the parts of plants, as leaves, chiefly of the palm-tree the rind and barks, especially of the silla, or phyllyrea, and the Egyptian papyrus. By degrees wax, then leather, were introduced, especially the skins of goats and sheep, of which at length parchment was prepared: then lead came into use; also linen, silk, horn, and lastly, paper itself.

Form of BOOKS. The first books were in the form of blocks and tables: but as flexible matter came to be wrote on, they found it more convenient to make their books in the form of rolls: they were composed of several sheets, fastened to each other, and rolled upon a stick, or

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umbilicus; the whole making a kind of column, or cylinder, which was to be managed by the umbilicus as a handle, it being reputed a crime to take hold of the roll itself: the outside of the volume was called *frons*; the ends of the umbilicus, *cornua*, horns, which were usually carved, and adorned with silver, ivory, or even gold and precious stones: the title, *syllabus*, was struck on the outside; the whole volume, when extended, might make a yard and a half wide, and fifty long. The form which obtains among us is the square, composed of separate leaves; which was also known, though little used, by the ancients. To the form of books belongs also the internal economy, as the order and arrangement of points and letters into lines and pages, with margins and other appurtenants. This has undergone many varieties; at first the letters were only divided into lines, then into separate words, which, by degrees, were noted with accents, and distributed, by points and stops, into periods, paragraphs, chapters, and other divisions. In some countries, as among the Orientals, the lines began from the right, and ran towards the left; in others, as the northern and western nations, from left to right; others, as the Greeks, followed both directions, alternately going in the one, and returning in the other, called *boustrophedon*: in most countries the lines run from one side to the other: in some, particularly the Chinese, from top to bottom. Again, in some the page is entire and uniform; in others, divided into columns; in others, distinguished into text and notes, either marginal, or at the bottom; usually it is furnished with signatures, and catch-words; sometimes also with a register, to discover whether the book is complete. To these are added the apparatus of summaries, or side-notes, the embellishments of red, gold, or initial letters, head-pieces, tail-pieces, emblems, schemes, maps, and the like. The end of the book, now denoted by *Finis*, was anciently marked with this character , called *cornis*.

BOOK-BINDING, the art of gathering and fastening together the sheets of a book, and covering it with a back. The ancient art of binding books, was not attended with great difficulties; for the leaves were only glued together, and rolled on round pieces or cylinders of wood, which manner of book-binding, whose invention is attributed to the Egyptians, was continued till long after the age of Augustus,

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tus, and is still retained by the Jewish synagogues, where they continue to write the books of the law on vellums sewed together, making, as it were, only one long page, with two rollers, having clasps of gold or silver at their extremities, the whole book being wrapped up in a piece of silk, which serves as a cover to it. But, as this manner of binding books is attended with many inconveniencies, one of the Attali, kings of Pergamus, invented the form now in use, of square binding, or of sewing several quires, one over another, as more commodious to the reader, who can open and shut his book in an instant, without the least difficulty, and without the leaves being exposed to wear out so soon as when rolled up, especially of books written or printed on paper.

The leaves are first folded with a thin piece of ivory called a folding-stick, and laid over each other in the order of the signatures; then beaten on a stone with a hammer to make them smooth and open well, and afterwards pressed. They are then sewed upon bands, which are pieces of cord or packthread, six bands to a folio book, five to a quarto, &c. which is done by drawing a thread through the middle of each sheet, and giving it a turn round each band, beginning with the first, and proceeding to the last. After this the books are glued, and the bands opened and scraped for the better fixing the paste-boards; the back is turned with a hammer, and the book fixed in a press between two boards, called backing boards, in order to make a groove for fixing the paste-boards; which being applied, holes are made for fixing them to the book, which is pressed a third time: then the book is put at last to the cutting-press, betwixt two boards, the one lying even with the press, for the knife to run upon; the other above it, for the knife to cut against; after which the paste-boards are squared with a pair of shears. The next operation is sprinkling the leaves of the book, which is done by dipping a brush made of hogs bristles into vermilion and sap-green, holding the brush in one hand, and spreading the hair with the other; by which motion the edges of the leaves are sprinkled in a regular manner, without any spots being bigger than the others, at least so far as to be disagreeable to the eye.

Then remain the covers, which are generally either of calf-skin, or sheep-skin. The best binding at present is in calf. The calf or sheep-skin being moistened in water, is cut out to the size of the book with a knife, then smeared over with

paste, and afterwards stretched over the paste-board on the outside, and doubled over the edges within-side, after having first taken off the four angles, and indented and plated it at the head-band; which done, the book is corded or bound firmly between two bands, with a kind of whip-cord, to make the cover stick the stronger to the paste-board and the back, as also to form the bands or nerves more accurately; then set to dry, and, when dry, uncorded, and the leaves at each end opened. Afterwards, the book is washed over with a little paste and water, and then sprinkled fine with a brush, by striking it either against the hand, or a stick, unless it should be marbled; for then the spots are to be made larger, by mixing the ink with vitriol. Then the cover is glazed twice, with the white of an egg beaten, as painters do their pictures, when they are finished, and at last polished with a polishing iron passed hot over the glazed cover. Thus the binding of a book, properly so called, is finished, unless it should be lettered; for then a piece of red Morocco is pasted on the back, between the first and second bands, to receive the title in gold letters, and sometimes a second betwixt the next bands underneath, to receive the number of the volume. In France, they seldom bind any book without both, if the work consists of several volumes.

BOOK-KEEPING, commonly called merchants accounts, the method of recording the dealings and transactions of business in such an exact and accurate manner, that the books of a merchant, factor, agent, &c. may at all times shew the just and true state of all and every distinct part of his trading concerns. In keeping mercantile accounts by the method of double entry, three principal books are absolutely necessary; the Waste-book, the Journal, and the Ledger. Besides these, several other auxiliary books are generally used in the counting-house; but these are more or less in number, according to the nature of the trade, and he is always reckoned the best accountant who makes use of the fewest subsidiary books.

The Waste-book is a complete memorial of all the transactions of business, recorded promiscuously in the regular order of time as they happened, and according to their proper debtors and creditors. This, being the first and most essential book, cannot be kept with too much accuracy and regularity, because it is always regarded as the principal voucher in all disputes relating to trade.

This book opens with an inventory of a merchant's ready money and effects, the debts due to him, and what he owes to others; then follows a minute and accurate record of every transaction of his commerce, with all the necessary circumstances of date, sums, conditions, quantity, quality, price, and every other particular that may help to render the entries satisfactory and intelligible both to the present and all succeeding book-keepers.

The Waste-book, commonly given in books of merchants' accounts, is very different from the form of that book in real business, being only a plain narrative of the transactions of each particular day by way of memorandum, from whence the learner is to make out the Journal and Ledger entries.

The Journal, by way of preparatory to the Ledger, contains an abbreviation of the Waste-book entries, in the same form and order of time, with only this difference, that the gross, tare, and nett, of each particular cask, bag, box, or other package, are expressed in full in the Waste-book; whereas the nett, weight, and price, are sufficient to be mentioned in a Journal post.

The Ledger is the principal book of accounts, wherein the several articles belonging to the same subject, are collected together, and ranged in their natural order of Dr. and Cr. on the opposite sides of their respective accounts. When this book is duly posted, the various transactions and dealings of a merchant, with respect to men, money, and merchandise, are so regulated and disposed under their proper heads, that they afford a comprehensive view of all his negotiations; from which a complete balance of his traffic being made, he may at any time see the true state of each branch of his business, and know the amount of his present stock, or what he is worth at that time.

The use of the three principal books being described, we shall next proceed to the examination and use of the terms Debtor and Creditor.

As all transactions in trade are mutual between person and person, the records of commerce must consist of two opposite parts, in order to be duly charged or debited on one side, and discharged or credited on the other, as the nature and reason of the events may require. — And as in all our dealings one man becomes indebted, or Dr. to another, for the value owing, and the other gives him credit, or is his Cr. for the same sum due: so in trade, if all accounts of

money, merchandise, and designs, be looked upon as accountable for their respective values, they must also be charged as indebted, or Drs. for the several sums expended upon them, and be discharged or credited for whatever they repay or produce in return by sale, &c.

Whence it is evident, as all accounts consist of two opposite parts, the Dr. side on the left hand page of the Ledger, and Cr. on the right, the terms Dr. and Cr. always express the relation between the two parts of each transaction, and shew to which side of their respective accounts in the Ledger they are to be carried.

The nature and use of the terms Dr. and Cr. being premised, it naturally follows to point out what is contained on the Dr. and Cr. sides of each account.

All the transactions of trade may be reduced to these three branches. First, Proper Trade, as it is carried on by the Merchant himself at home, with the assistance of his factors abroad. Secondly, Factorage, or the business he manages for another on commission. Thirdly, Partnership, or Company Accounts, which are carried on either by one of the partners, or an indifferent person, as agent or trustee, in the name and for the joint account of all the partners concerned.

Let the business of a merchant be ever so extensive, all the distinct species of accounts that can possibly happen, are reducible to these four: Cash, Merchandise, personal Accounts, and Designs.

The Cash account contains, on the Dr. side, the ready money which the merchant had in hand when the account was opened, and all he has received since. The Cr. shews what has been given out in payments. And the difference between the sides always falls on the Dr. side, agreeable to the account of cash in hand; the Cr. side never can be the heaviest, because no one can pay away more than he had.

The account of goods, containing the prime cost and charges, make the Dr. side: the quantity and value sold or disposed of, go to the Cr. side: the difference between the sides shews the quantity of goods on hand, and the gain or loss by what was delivered out.

In selling goods on commission for another, the Cr. side of the account of sales is the same with other accounts of your own goods; but the Dr. side contains only the freight, commission, and other charges, without any mention of prime cost or value; because they are not your own

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property; and the difference between the Cr. side, or gross sales, and the charges and commission on the sales, is the nett proceeds of the sales, and shews what is due from you to your employer, when you have received all the value arising from the sale of his goods.

In all accounts of merchandise, the different kinds, quantities, and prices, should always be distinguished by inner columns in the Ledger, from which a merchant may at any time see the quantity, weight, &c. of what goods he has on hand, and know the strength of his warehouse, without the trouble of examining the contents.

The prime cost or valuation, with all incidental charges of repairs, insurance, or other expences laid out upon them, go to the Dr. sides of the accounts of ships, houses, and other possessions; the Cr. side contains the freight, rent, or other profits arising from them, while in possession, and the amount of sales when they are disposed of; from which the true state of all such accounts may be easily known, as in accounts of goods.

The Personal Accounts contain on the Dr. side the debts due to you from the person whose name stands in the title of the account, whether for goods sold, cash lent, or received on your account, and the payments of your debts to him: the Cr. side is filled up with the debts you owe him, the payments of his debts to you, and the remittances he has made to you: when the difference falls on the Dr. side, it shews what is due by you to him; and when the Dr. side is heaviest, the debt is due from him, or your money remaining in his hands.

Under this head are included all accounts current, and accounts of bills: and as these accounts are distinguishable only by some small alteration in the words of their titles, it may not be improper to explain the difference between them.

Bills Receivable, are those drafts which come into the hands of a merchant in the course of trade, and which he may either pass off in making his payments, or keep them in his hand till they become due, and then receive the value from the person upon whom they were drawn: the Dr. side shews what bills you have received, and the Cr. how you have disposed of them: the difference is the value still in hand.

Bills Payable, are those drafts which are drawn upon a merchant, and never come into his hands, but for acceptance, or after he has paid the value in cash, or some

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other way satisfied the present possessor: the bills drawn upon you are to be placed to the Cr. side of this account, and the Dr. side shews how many you have discharged.

When you transact business for any one of your correspondents, the particulars relating to such accounts are to be entered in your Ledger, under the title of *A. B. His Account Current*: the same account in your correspondent's Ledger is titled *C. D. my account current*, and in the foregoing case *C. D. his account current*.

In all your dealings with foreign correspondents, it is absolutely necessary, that you keep the accounts in the money of both countries, the foreign money in the inner columns of the Ledger against its sterling value in the money columns at the course of exchange then going. By this method you may always know the state of your accounts with your foreign correspondents, in the coin of both countries. When the foreign money is equal, the difference between the sterling columns is your gain or loss, by the exchange; if the sterling money be equal, the difference between the inner columns is due to or from you, at the current rate of exchange: for as your correspondent pays and receives only the species of his own country, when the account balances with him, you are not to expect any further remittance.

Designs, or fictitious accounts, comprehend all voyages and adventures, which contain on their Dr. side the prime cost, charges, insurance, &c. of cargo shipped. The Cr. side is filled with the disposal of the goods, returns received from the factor, the sum received or due from the insurers for a total loss, or in case of a partial loss, with the value to be made good by the insurers, and the value saved; the difference between the sides is the gain or loss made by the voyage or adventure, &c.

All intermediate accounts of pure disbursements for which nothing comes in, or nett incomes for which no value goes out, such as charges of merchandise, house expences, interest and discount, insurance, gratuities, commission, or any other accounts of gain or loss, contain on the Dr. side the respective losses, and on the Cr. side the particulars gained.

To open the BOOKS.—The Waste-Book and Journal are both ruled alike, with three columns for pounds, shillings, and pence, on the right hand side of the pages on the left is a margin for references to the

the folios of the Ledger, where the particular accounts then mentioned are to be found.

The Ledger is ruled on the left hand side of every page with a margin for the month, one column for the day, and another for the Journal page; and on the right, besides the reference column to the Ledger folios and money columns, there must be inside columns for the quantity and weight of goods, foreign money, &c. as the nature of the account requires.

Though the dates of the Waste-Book and Journal entries might serve for references to each other; yet as the business of one day may sometimes fill several pages in both, a reference in the Waste-Book to the identical page of the Journal post, and from thence to the Ledger, will often save much time in examining the accounts: and for the more readily turning to any account in the Ledger, which you have occasion to consult, the titles of every account, with the number of the folio where they are stated, must be set down in an alphabet under the respective initial letters; observing to put the names of men under the letters of their surname, and adding their other names and place of abode for more particular distinction: because you may, perhaps, have dealings with several of the same name, though not of the same place.

When the books are thus prepared, the first thing to be done, before you enter into trade, is to write an inventory, either in the first page of the Waste-Book, or, as is more common with merchants, on a loose sheet of paper, of all the ready money and merchandise by you, debts owing to you, voyages, adventures, ships, houses, and all other effects belonging to you: enter these several persons and parcels, Drs. to your stock or general capital, which is used instead of your own name: and for the debts owing by you, write stock Dr. to those several persons to whom you are indebted.

Then turning to the Journal, make the several articles which were particularly expressed in the Waste-Book, Drs. to stock, in one line, writing thus:

Sundry Accounts to Stock - - Drs.

For the amount of money and effects
per Waste-book. - - - - - £

Stock to sundry Accounts - - Dr.

For which I am indebted to sundry persons. - - - - - £

And having placed the same folio figures on each opposite page of the Ledger; because each account consists of two opposite parts; write on the top of the left-hand page, in a good round text hand, Stock—Dr; and below, placing the month in the margin, the day in the next column, and the Journal folio in the other; write either *To sundry Accounts*, expressing the whole value in one sum, or *To the several Particulars*, as in the Waste-Book; putting the Ledger folios where those Accounts are opened, and the respective sums against each.

On the right-hand page, write Contra—Cr. and in the line below, *By sundry Accounts*, for the whole value, or *By each Particular*, with its sum; observing the date and folios as on the Dr. side.

Then beginning with cash, enter into the title Cash—Dr.—Contra—Cr. as you did for stock; and beneath in small hand, on the Dr. side, after the date and Journal folio, write, *To Stock for so much ready Money*, expressing the sum and Ledger folio, where the account of stock is opened.

When all the accounts in the inventory are erected, and charged according to their respective debts or credits, the books are then said to be opened, and the merchant may proceed to record the particular transactions of real business.

In posting from the Waste-Book to the Journal, and from that to the Ledger, it is common to make a dash, or some other mark at the pleasure of the book-keeper, in the margin against the accounts, to shew that they are entered into the other books. This is called *Pricking off the Accounts*.

To post or make Entries.—Every entry which is made in the Waste-Book, ought to consist of all, or as many of the following parts as the circumstances of the transaction will admit.

1. The date in the middle of the page, with lines drawn each way to the columns.
2. The debtor or account to be charged, and creditor or account which is discharged, written in a large hand, with Dr. at the end of the same line.
3. The reason why such a person, account or design, is made Dr. with the particular conditions of the negotiation.
4. The mark, weight, measure, &c. of each particular parcel or package, which is received in or delivered out at the price agreed upon.

5. The

3. The total sum in the money column.

In other entries where there are sundry debtors to one creditor, or several creditors and only one debtor, the several debtors or creditors are entered in the first line after the date, under the title of *Sundries*, or *Sundry Accounts*, and each particular Dr. or Cr. afterwards expressed below with their respective sums short carried.

To an expert book-keeper, a Waste-Book without a Journal, or a Journal without a Waste-Book, would be sufficient; but as he may not always be in the way, or sometimes in the hurry of business be obliged to make entries in haste; this makes it necessary to keep a Waste-Book, from which at leisure hours the entries may be more correctly and fairly journalized by one hand: for the Journal should be written by one person, and we will recommend it to all book-keepers to keep the Journal and Ledger always close posted up with the Waste-Book.

The Journal entries are no more than a fair copy of the Drs. and Crs. in the Waste-Book, exactly in the same form and words. But the conditions, nett weight, total amount, &c. are expressed below in more concise and general terms.

As the Waste-Book entries are transferred into the Journal, so are these in the Journal posted into the Ledger, under the respective heads; but as all the titles of accounts in the Ledger consists of a Dr. part on the left-hand page, and its counter-part Cr. on the opposite page; so every entry into this book must be placed under two or more different heads, according to the circumstance of each transaction.

For your government in making Waste-Book and Journal entries, and posting them into the Ledger, remember the following precepts.

1. In every account there must be a debit and a credit part; so that whenever you make an entry on the Dr. side of any account in the Ledger, you must also have an equivalent credit of the same date under some other title. And in those Journal entries, where sundry accounts are charged Drs. or Crs. the several debtors and one creditor, or the single debit and several credits, must always be equal; or whatever value you place to the debit of one or several accounts, just so much must be entered on the Cr. side of some other account or accounts, before your entry be duly posted into the Ledger.

2. The receiver is debtor; the deliverer is the creditor. But as the merchant is never to be made a Dr. or Cr. in his own books, whenever he receives or delivers out any thing; then the merchandise or money which comes into his hands is the debtor, and whenever he delivers out is the creditor.

The account or design which is by any means increased or benefited, or on account of which any thing goes out, either from yourself or from any of your correspondents for your account, is to be charged Dr. for the total amount. That account or design which decreases, suffers loss, or from whence any thing is produced or comes into your own hands, or into the hands of any one employed for your account, is to be credited or discharged from the value.

To correct errors.—The common method of discovering errors, and proving the truth of the posting, is to make a trial-balance: this is done by adding up all the sums on the Dr. side of the Ledger into one total, and all the sums on the Cr. side into another; when these sums total agree, the posting is concluded to be just.

But as errors in posting may be committed many different ways, which will not effect the trial-balance, the only means to be certain that no such neglect or mistake has been committed, is to prick off all the entries, as well in the Waste-Book and Journal, as in the Ledger; and as it is inconsistent with the honourable character of a merchant and fair trader to suffer any blotting out or erasure in his books, when any errors are discovered, the book-keeper must always acknowledge such mistakes in plain words in the same book where they are found, and place an asterisk against the erroneous entry and its correction, when he writes them off the Ledger.

Subsidiary BOOKS.—Besides the three principal books already described, those merchants who are largely concerned in trade, find it necessary to make use of several other subsidiary books, which are chiefly designed to ease the Cash-Book, and some of the accounts in the Ledger, or to contain the particulars of those kinds of articles, which, though they are necessary to be preserved for the sake of reference, would take up too much room in the Waste-Book or Journal.

The following descriptions are ranged agreeable to the order of time usually observed in counting-houses, for admitting young clerks to write in each book.

1. *The Letter BOOK.* To keep copies of all the letters of business which a merchant writes to his correspondents, may sometimes prove of the utmost importance to his commercial affairs; for as disputes very often arise from orders or advice being ill expressed, wrong understood, or badly executed, by having recourse to the the letter-book, he may know exactly what was written on any particular occasion, in what terms and with what limitations an order was given, or what kind of advice had been sent to any of his correspondents; he will also be enabled to furnish a true copy of the original which has been lost or mislaid.

As no other qualifications but reading and writing are requisite in copying letters, this is the employment of every young clerk at his first admission into the counting-house; but, to prevent any omissions or alterations, the copy should always be read over, and carefully compared with the original, before it be sent away.

2. *The Ship's BOOK.*—Those who have the direction of fitting out ships, commonly keep the account for each ship in a separate book, which takes its title from the name of the ship, as the *Elizabeth's Book*, the *Tyger's Book*, &c.

When several merchants have shares of the same ship, one of the partners being appointed by the rest to keep the accounts, and have the management of her out-fit, is called the *Ship's Husband*.

A ship's book should contain the invoice of the cargo; the captain's orders; an account of the disbursements or charges attending the fitting out, and purchase, if it be her first voyage for that ownership; a list of tradesmen's bills for the cargo, out-fit and victualling; the names, stations, wages, &c. of the several persons on board; and the division of the whole among the owners, if more than one, according to their respective shares. This part is drawn out by the ship's husband, immediately after the ship sails, and sent to the other parties to be copied. When the ship returns from her voyage, the invoice of returns, and if they are not put into the broker's hands to be sold, their division among the owners, the factor's account of sales, and account current, are added to it, and copied by the several parties as before.

3. *The Receipt BOOK.*—The most common form of this book is quarto, opening the long way, and contains receipts for all the payments a merchant makes, in-

stead of having them upon loose papers, or under the bills of parcels, &c. each receipt being numbered in the margin may serve for references, and the sums may be placed in money columns on the other side.

A receipt, being a note of acknowledgement given by the receiver of a sum of money to discharge the payer from his obligation, should have only the date expressed in figures; the person from whom, and on whose account it was received; the sum received; the reason for such payment in full or in part, whether on his own or another's account, should all be specified in words at length, and must be signed below by the receiver.

4. *The Bill BOOK.*—To be regular in business, and punctual to engagements, is the grand support of all commercial honour and credit; and when a merchant knows what bills he has by him, and when they will become due, what bills he has drawn upon his correspondents, and what they have drawn upon him, common prudence will dictate such means of maintaining his reputation as are agreeable to the customs of merchants, and the laws of exchange.

The bill-book is designed to supply this part of necessary information, and in some counting-houses contains exact copies of all the bills which are drawn by or pass through the hands of the merchant, with the indorsers written in the margin on one side, and the person's name to whom they are passed on the other.

5. *The Invoice BOOK.*—This book contains copies of all the invoices of goods which a merchant ships off to sea, or receives from abroad, either on his own private account, in partnership, or for others in commission. And to render the invoices easier to be found, the invoice-book should be paged, and have an alphabet at one end.

The title of every invoice should declare the name of the ship wherein the goods are shipped, the master's name, the merchant to whom and on whose account they were shipped, with their respective places of residence.

Then should follow a minute detail of all the different kinds, quantities, and qualities, of the merchandise shipped, with the particular circumstances relating to their mark, number, package, price, &c.

Below this must be annexed on account of the freight, custom, charges, brokerage, commission, &c. attending the purchase

chase or shipping, which being short-carried must be brought into the money columns in one sum, and being added to the value of the merchandise above, gives the amount of the invoice in the money of that country where the goods were shipped.

And, to complete the whole in the common mercantile form of closing all invoices, accounts current, accounts of sales, &c. at the foot of the invoice write, *Errors excepted*, to signify that if any errors or omissions have passed unobserved, they are no more than oversights, and not intended to the prejudice of either party. Immediately after this must be written the place and date of drawing the account; and in the next line below it must be signed by the person who shipped the goods.

6. *The Sales BOOK*.---This book contains a collection of the several sales of merchandise which have been made either by you for your employers, or on your account by your correspondents at other markets.

An account of sales is the account given by one merchant to another, or by a factor to his principal, of the disposal, charges, commission, and nett proceeds of certain merchandise sent for the proper or company accounts of him who consigned the same to such factor or vender, and is always made out in the current money of that country wherein the business is transacted.

There are several methods of drawing up accounts of sales; the first is to collect all the goods of the same kind, and place them together in the same order as they were sold, with their prices and values short-carried; then add up the quantities to be compared with the invoice, and carry the amount into the money columns; when you have gone through all the particulars, place the charges below, which being deducted from the amount of the sale, leaves the nett proceeds.

7. *The BOOK of Accounts Current*.---This book is kept in the Ledger form of Dr. and Cr. and contains copies of all the accounts current, which are drawn up to be sent to correspondents, in order to have them settled in concert before they are closed in the Ledger.

If those merchants who transact business by commission for others, would always take care to tender an account current to be examined and passed by their employer as soon as his affairs are finished, it would certainly be the most effectual means of preventing those differences and disputes in trade, which so often arise from accounts standing open too long, and might have been easily adjusted while the particu-

lar circumstances were fresh in the memories of both parties.

8. *The Warehouse BOOK*.---The use of this book is to keep memorandums of the marks, numbers, package, quantity, quality, &c. of all the merchandises which are from time to time received into or delivered out of a merchant's warehouse: together with the names of those from whom they are received, and to whom they are delivered, and all other particular conditions necessary to be mentioned in the Waste-Book entry.

Some merchants keep their warehouse-book on the two opposite pages in the Ledger form: the left-hand page containing the marks, numbers, weight, &c. of the goods taken into the warehouse; and on the right hand page they follow the same method for those which are sent out; but if the quantities of goods be kept in the inner columns of the Ledger, the stock of merchandise on hand may be much easier known, and this method of keeping the warehouse-book will be entirely superseded.

9. *The BOOK of Expenses*. The particulars of all the different charges and expenses on trade, such as carriage, duties, freight, wharfage, portorage, house-expences, postage of letters, rents, &c. may either be kept on different pages of the same book, or in as many separate books as the merchant finds convenient for his business.

The first commission conferred on a young clerk in the counting-house is keeping the petty cash: in this office he is appointed to pay and keep the account of all incident petty expences and commerce.

It may not be improper for those who transact business on commission for others, to keep separate accounts of the expences attending each employers affairs, from which they may at any time easily furnish a copy of the particulars when requested, or carry the amount to their respective accounts when they are sent in.

The model of this book is very easily conceived; and all that is necessary to be observed in keeping it is, that the cash paid out in expences on the household or commercial affairs, must be carefully entered under the respective title of the account for which it was paid, and then once a week or month be cast up, and the sum total transferred to the Waste-Book.

10. *The Cash-BOOK*.---The cash-book, or cash-ledger, is the most important of all the subsidiary books. It is kept in the Ledger form, and contains on the Dr. side all the particular sums of money which are

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are daily received and the several sums delivered out in payments, are entered on the Cr. side, references from each entry to the corresponding accounts in the Ledger.

From keeping the petty cash, the young clerk is promoted to the care of the general cash, and then he is stiled the cashier, or cash-keeper: and as the cash-keeper is liable to make good all deficiencies in the cash, it is his business only to keep the cash-book; which for his own satisfaction should often be examined how it agrees with the cash in hand, and once a week, or month, as it is found most convenient, must be transferred to the Ledger.

BOOK-SELLER, a person who trades in books, whether he prints them himself, or gives them to be printed by others.

BOOM, in marine fortification, a strong chain, on which are fastened a number of yards, poles, &c. extended across the mouth of a harbour to prevent the entrance of enemies ships.

BOOMS, in naval affairs, long poles to extend the bottom of certain sails; of these there are several kinds, as studding-sail-booms, jib-boom, square-sail-boom, and main-boom; the two last, however, are only used in small vessels. This is likewise a general name for all masts and yards.

BOOT, a well-known cover for the leg, made of leather: chiefly used in riding.

BOOT-TREE, or **BOOT-LAST**, an instrument used by shoe-makers to widen the leg of a boot. It is a wooden cylinder slit into two parts, between which, when it is put into the boot, they drive by main force a wedge or quoin.

BOOT-TOPPING, in naval affairs, when a ship, either from the hurry of her voyage, or the want of a convenient situation, cannot get her bottom cleaned of the filth that gathers to it at sea; it is usual to make her heel, or incline first to one side and then to the other, as much as they may do it without Danger of overturning her; and having scrubbed off the ooze, shells, and other excrement, with brushes and brooms, they cover it with a mixture of tallow, sulphur, &c. and this is called giving her Boot-tops. See **CAREEN**, **Dock**, &c.

BOOTES, a constellation of the northern hemisphere, consisting of twenty-three stars, according to Ptolemy's catalogue; of twenty-eight, in Tycho's; of thirty-four in Bayer's; of fifty-two in Hevelius's; and of fifty-five in Mr. Flamsteed's.

BOOTY, what is taken from an enemy in time of war.

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Among the Greeks, the booty was divided equally, a share being reserved for their gods. By the military discipline of the Romans, the booty belonged to the Republic, and the generals ordered it all to be carried to the public treasury. Sometimes, indeed, it was distributed among the soldiers, as a reward of their bravery, and in order to animate them in future actions.

BORAGO, Borage, a very hairy rough plant, with wrinkled blackish green leaves approaching to an oval shape, and round hollow stalks on which the leaves are set alternately; on the tops of the branches come forth blue, sometimes reddish or whitish, monopetalous flowers, each of which is divided into five sharp pointed segments, and followed by four wrinkled blackish seeds, lying naked in the enlarged cup. It is annual, and grows wild on waste grounds, and on old walls.

The apariant and refrigerating virtues ascribed to borage leaves are not wholly without foundation; though these virtues are undoubtedly very weak.

The flowers of the plant have been principally made use of, and are generally ranked among cordials, though they seem but little entitled to that distinction.

BORAX, a saline substance, of which neither the origin, or the component parts are yet known. It comes from the East-Indies, in little crystalline masses.

The properties of borax, so far as they are known, are these: It is of a bright snowy whiteness, extremely light, composed of fine plates or scale, soft, and as it were unctuous to the touch, of no smell, of a bitterish taste, accompanied with a slight impression of coldness. It dissolves with difficulty in boiling water, and on the liquor's cooling, crystallizes on its surface into thin plates, which uniting and becoming larger, fall to the bottom. It is observable, that borax, during its dissolution, appears tenacious, and adheres in part to the bottom of the vessel: from this glutinous quality, peculiar to borax, among the salts, it is employed by the dyers for giving a gloss to the silks. It is also of the greatest use in soldering metals. See **SOLDERING**.

BORDAT, in commerce, a small narrow stuff, manufactured in some parts of Egypt, particularly at Cairo, Alexandria, and Damietta.

BORDERS, in gardening, are of four sorts: those are the most common that are continued about parterres without any interruption, and wrought with a gentle rising

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rising in the middle, like an ass's back, and planted with low shrubs and flowers. The second sort of borders are such as are cut into compartments, at convenient distances, by small passages, and being also raised in the middle, as before mentioned, are likewise set off with shrubs. The third sort are such as are laid even and flat, without flowers, having only a verge of grass in the middle, being edged with two small paths, raked smooth and fanded. These are sometimes garnished with flowering shrubs, and flowers of large growth; or with vases and flower-pots placed regularly along the middle of the verge of grass.

The fourth sort are quite plain, and are only studded, as in the parterres of orange-ry: and are filled with cases ranged in a regular order along those borders, which are edged with box on the sides next the walks: and on the other, with verges and grass-work next the parterre. Sometimes a yew is planted between each case, which makes the border appear richer, and the parterres handsomer, during the winter season. As the modern taste of parterres, and fret-work in box, has been justly banished from our gardens, so I have only mentioned them here, to expose the taste of those architect-gardeners, who have no idea of the noble simplicity of an open lawn of grass, properly bounded by plantations: but instead of this, divide that part of the garden, near the house, into various forms of borders edged with box, and sand or gravel-walks leading about them; by which the ground is cut into many angles, scrolls, &c. which is very hurtful to the eye of a judicious person; therefore, where flowers are desired, there may be borders continued round the extent of the lawn, immediately before the plantations of shrubs; which, if properly planted with hardy flowers to succeed each other, will afford a much more pleasing prospect than the stiff borders made in scrolls and compartments, after the French manner, can possibly do. These borders may be made six or eight feet wide, in proportion to the extent of the garden, and size of the lawn; for a small lawn should not have very broad borders; nor ought a large lawn to be bounded by small borders; so that a due proportion should be always observed in the laying out of gardens. *Miller's Gardener's Dictionary.*

BORD-LANDS, the demesnes which lords keep in their hands for the maintenance of their board or table.

BORD-SERVICE, the tenure of bord-lands, by which some lands in certain

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places are held of the bishop of London, and the tenants now pay six-pence per acre, in lieu of finding provision as anciently for their lord's table.

BORDURE, in heraldry, a cutting off from within the escutcheon all round it, about one fifth of the field, serving as a difference in a coat of arms, to distinguish families of the same name, or persons bearing the same coat. If the line, constituting the bordure, be straight, and the bordure be plain, then in blazoning you must only name the colour of the bordure.

Bordures are symbols of protection, favour and reward, and as such, kings bestow them on those they have a value for.

BORE, among engineers, the diameter of the barrel of a gun, or cannon, or rather its whole cavity.

Aurora **BOREALIS**, See **AURORA**.

BOREAS, a Greek name, now in common use for the north wind. Pezron observes, that anciently Boreas signified the north-east-wind, blowing at the time of the summer solstice. Boreas is represented, in painting, like an old man with a horrible look, his hair, and beard covered with snow or hoar frost, with the feet and tail of a serpent.

* **BORGIA (CÆSAR)** the natural son of Roderic Borgia, afterwards pope, by the name of Alexander VI. He was prosecuting his studies at Pisa, when his father was raised to the papacy, in 1492, upon which he took a journey to Rome, where he was soon after made archbishop of Valenza, and cardinal of St. Maria Nuova. The rest of his life was a continued scene of the blackest and most horrid villainies. After committing a great number of assassinations, he resigned his cardinalship, and went ambassador to France, where he was made duke of Valentinois, by Lewis XII. and poisoned the bishop of Setta, the pope's nuncio, at Paris. He married Mademoiselle d'Albret, daughter of the king of Navarre. He now grew every day more and more bloody in his disposition; Rome and the Ecclesiastical dominions were full of assassinations. Every thing of which the clergy were possessed, was, upon their decease, claimed by the pope as his property; and the sums arising from the benefices, while vacant, were likewise secured; and the benefices themselves sold like common goods in a market. In this manner were the Borgias heaping up wealth, when an unforeseen accident blasted all their projects. Borgia and his father the pope proposing to make themselves masters of Tuscany determined to raise money by the promotion

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promotion of new cardinals; upon which they chose nine of the richest of the prelates, whom they resolved to dispatch by poison immediately after their promotion, together with some others of the most wealthy at Rome. For this purpose they invited the new cardinals to sup at a vineyard near the Vatican, belonging to cardinal Adriano di Corneto, who, as he was extremely rich, was, among the rest, singled out to die by the same poison. Borgia, in order to execute this design, sent to the pope's butler, who was to serve at supper, some particular flasks of wine which he had mixed with poison, and gave the butler a strict charge that none should taste of it but those whom he should particularly direct. The pope and he, about the cool of the evening, came to the vineyard where they were to sup, when the former, before he sat down to supper, desired something to drink; the chief butler, who had received Borgia's directions about the poison, being gone to the Vatican to fetch a salver of peaches for the dessert, the under butler went to the side-board, and finding six flasks laid by in a corner, imagined that they might contain wine of a better kind than the rest, and therefore poured out a glass-full of the poisoned liquor, which he delivered to the cup-bearer, who gave it to the pope, who instantly drank it off. Borgia likewise drank another glass of it. As soon as the pope sat down to supper, the poison began to work so in his bowels, that he fell suddenly off his chair, and was taken up for dead. Nor did Borgia escape the effect of his own plot; he was seized with exquisite pain. As soon as the pope was taken from the ground, they caused him to be carried in all haste to the Vatican, and Caesar Borgia to his chamber likewise, and from that moment they never saw each other again; remedies were in vain used for the pope's recovery, he was filled with inexpressible agony, and the next day died, the 18th of August, 1503. But Caesar Borgia, by the strength of his constitution, overcame the poison. After this Borgia narrowly escaped being massacred by his enemies; he was confined in prison; he made his escape; was obliged to fly for safety from place to place, and at last entering a volunteer into the army of his brother-in-law, John, king of Navarre, this execrable monster was killed fighting under the walls of Viana, March 12, 1507.

BORING, the art of perforating or making a hole through any solid body,

BORING of *Water-pipes*. See **PIPES**.

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BORING, in farriery, an operation in use for the cure of wrenched shoulders in horses. Having cut a hole in the skin, over the part affected, they blow it up with a tobacco pipe, as a butcher does a shoulder of veal; after which they thrust a cold flat iron, like the point of a sword blade, eight or ten inches up between the shoulder blade and the ribs: this they call boring.

BORING, in miners' jargon, a method of piercing the earth with scooping irons, which, being drawn back at proper times, bring up with them samples of the different strata through which they have passed; by the examination of which they will be able to guess whereabouts a vein of ore may lie.

BOROUGH, **BURROUGH**, **BOROW**, or **BURGH**, a corporation, or town, which is not a city. The word originally meant a company, consisting of ten families which were bound together as each other's pledge. Afterwards borough came to signify a town having a wall or some kind of enclosure round it: and all places that in old time had the name of borough, it is said, were fortified or fenced in some shape or other. Borough is a place of safety and privilege: and some are called free burghs, and the tradesmen in them free burgesses, from a freedom they had granted to them originally, to buy and sell without disturbance, and exempt from toll.

BOROUGH is now appropriated to such towns or villages as send representatives to parliament, whether incorporated or not. They are distinguished into those by charter or statute, and those by prescription or custom: the number in England is 149, some of which send one, but the most of them two representatives.

Royal BOROUGHs, in Scotland, corporations made for the advantage of trade, by Charters granted by several of their kings, having the privilege of sending commissioners to represent them in parliament; besides other peculiar immunities. They form a body of themselves, and send commissioners each to an annual convention at Edinburgh, to consult the benefit of trade, and their general interest.

BOROUGH-HEAD, or **HEAD-BOROUGH**, called also borough-holder, or burholder, the chief man of the decenna, or hundred, chosen to speak and act in behalf of the rest. Headborough also signifies a kind of head constable, where there are several chosen as his assistants, to serve warrants, &c. See **CONSTABLE**.

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BOS, the ox, in zoology, a genus of quadrupeds, of the order of the pecora, the characters of which are, that the horns are hollow and turned forward, bent like crescents, and smooth on the surface.

Of this genus, authors enumerate the five following species, viz. 1. The common tame kind. 2. The bonafus. 3. The bison. 4. The bubalus. 5. The urus. See the articles **BONASUS**, **BISON**, &c.

* **BOSCAWEN (EDWARD)** a distinguished admiral, was the second son of Hugh, late lord viscount Falmouth, and having early entered into the navy, was, in 1740, appointed captain of the *Shoreham*, and behaved with great intrepidity as a volunteer under admiral Vernon, at the taking of Porto Bello. At the siege of Carthage, in March 1740-1, he had the command of a party of seamen, who resolutely attacked and took a battery of fifteen twenty-four pounders, though exposed to the fire of another sort of five guns. Lord Aubrey Beauclerk being killed on the 24th of March, at the attack of Boca-Chica, captain Boscawen succeeded him in the command of the *Prince Frederick* of seventy guns. On the 14th of May, 1742, he returned to England, and married Frances, daughter of William Glanville, esq. and was elected representative in parliament for Truro, in Cornwall. In 1744, he was made captain of the *Dreadnought* of sixty guns, and soon after took the *Medea*, a French man of war. On the 3d of May, 1747, he signalized himself under the admirals Anson and Warren, in an engagement with the French fleet, off Cape Finesterra, and was wounded in the shoulder with a musquet ball. On the 15th of July; he was appointed rear-admiral of the blue, and commander in chief on an expedition to the East Indies; and on the 4th of November sailed from St. Helen's, with six ships of the line, five frigates, and two thousand soldiers. On the 29th of July, 1748, he arrived at St. David's, and soon after laid siege to Pondicherry; but the men growing sickly, and the monsoons being expected, the siege was raised. Soon after he had news of the peace, and Madras was delivered up to him by the French. In his absence he had been appointed rear-admiral of the white. He was the next year made one of the lords commissioners of the admiralty, and chosen an elder brother of the Trinity-house. On the 4th of February, 1755, he was appointed vice-admiral of the blue, and on the 19th of April, sailing in order to intercept a French

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squadron bound to North America, fell in with the *Alcide* and *Lys*, of sixty-four guns each, which were both taken. In 1756, he was appointed vice-admiral of the white, and in 1758, admiral of the blue, and commander in chief of the expedition to Cape Breton, when, in conjunction with general Amherst, and a body of brave troops from New-England, the important fortrefs of Louisbourg, and the whole island of Cape Breton, was taken, for which he afterwards received the thanks of the house of commons. In 1759, being appointed to command in the Mediterranean, he arrived at Gibraltar, where hearing that the Toulon fleet, under M. de la Clue, had passed the Streights, in order to join that at Brest, he got under sail, and on the 18th of August saw, pursued, and engaged the enemy. His ship, the *Namur*, losing her main-mast, he shifted his flag to the *Newark*, and after a sharp engagement, took three large ships, and burnt two in Lagos Bay, and the same year arrived at Spithead with his prizes, and two thousand prisoners. On December 8, 1760, he was appointed general of the marines, with a salary of 3000*l.* per annum, and was also sworn one of the privy council. This brave admiral died the 10th of June, 1761.

BOSQUETS, are groves of shrubs, or tall large-growing plants, planted in quarters. These quarters are commonly surrounded with ever-green hedges, and the entrances formed into regular porticoes with yews, which are by far the best and most proper trees for this purpose.

They may be also surrounded with hedges of lime, elm, horn-beam, or beech; which should be kept well sheared, and not suffer to rise too high, that the heads of the trees may be fully seen over them, and the stems only hid from the sight, when in the walks on the outside of the quarters. In planting of these bosquets, you should observe to mix the trees which produce their leaves of different shapes, and various shades of green, and hoary or mealily leaves, so as to afford an agreeable prospect; besides, there is a great variety of different fruits, which these trees produce in autumn; which, although of little or no use that we know of, yet have a very good effect, in affording an agreeable variety for some time after the leaves are gone; as the euonymus, or spindle-tree, the opulus, or marsh-elder, the cock-spur-hawthorn, with many other sorts, too numerous to mention in this place. But I would advise never to mix ever-greens with deciduous trees; for, besides

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besides the ill effect it hath to the sight, especially in winter, they seldom thrive well together; so that those quarters where you intend to have ever-greens, should be wholly planted therewith. These bosquets are proper only for spacious gardens, being expensive in their first making, as also in keeping. *Miller's Gardener's Dictionary.*

BOSSAGE, in architecture, a term used for any stone that has a projecture, and is laid rough in a building, to be afterwards carved into mouldings, capitals, coats of arms, &c.

BOSSAGE, that which is otherwise called rustic work, and consists of stones which advance beyond the naked, or level, of the building, by reason of indentures or channels left in the joinings. These are chiefly used in the corners of edifices, and thence called rustic quoins. The cavities or indentures are sometimes round, sometimes chain-framed, or bevelled, sometimes in a diamond form, and sometimes included with a cavetto, and sometimes with a listel.

* **BOSTON**, a town of Lincolnshire, it has two markets, one on Wednesdays, and the other on Saturdays, and also three fairs; that on May 4 is chiefly for sheep; that on August 11 is called Town Fair, and that on December 11 is for horses. It sends two members to parliament, and is a large, neat, and well inhabited town, seated on both sides the river Witham. It has an handsome market-place, and a church, reckoned the largest parish church, without cross isles, in Europe, and its steeple serves as a land-mark for sailors. Boston is governed by a mayor, who is clerk of the market and admiral of the coast, a recorder and his deputy, twelve aldermen, eighteen common council men, a judge, and marshal of the admiralty, a town-clerk, a coroner, and two serjeants at-mace. It is one hundred and twenty north of London. Long. 0. 15. E. Lat. 53. 3. N.

* **BOSTON**, the capital town of New England, in North America, it was built in 1630, in a peninsula about four miles in circumference, at the bottom of Massachusetts Bay. On the south side are several rocks, which break the waves at the entrance of the bay; and on the north side there are about a dozen small islands, called the Brewsters, some of which are inhabited. The entrance would be difficult, but for marks set up for a guide; but within the harbour there is room enough for five hun-

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dred ships to lie at anchor. In one of the above mentioned islands there is a castle regularly fortified, called Fort William, which stands well to guard the entrance. There are one hundred pieces of cannon, placed on a platform near high water mark, some of which are forty-pounders. The bay is so much frequented, that there are twenty-four thousand ton of shipping cleared annually. Ships may unlade here without the help of lighters and boats. The streets are handsome, and the chief runs from the pier to the Town-house or Exchange, which contains the merchant's walk, the council chamber, the house of the representatives, and a large room for courts of justice. It is surrounded with booksellers shops, among which are five printing-houses. The town lies in the shape of a half-moon round the harbour, and contains about four thousand five hundred houses, and twenty-four thousand inhabitants. As it stands upon land that rises gradually, it affords a delightful prospect into the sea. It is two-miles in length, and in some places three quarters of a mile broad. The buildings are of brick, the streets are spacious and well paved, and the water good. The trade with Great Britain, and the British colonies in America, procure plenty of all the necessaries of life, and in general the inhabitants are well dressed and polite. They have a market every Thursday, and several fairs in a year. Long. 71. 5. W. Lat. 42. 24. N.

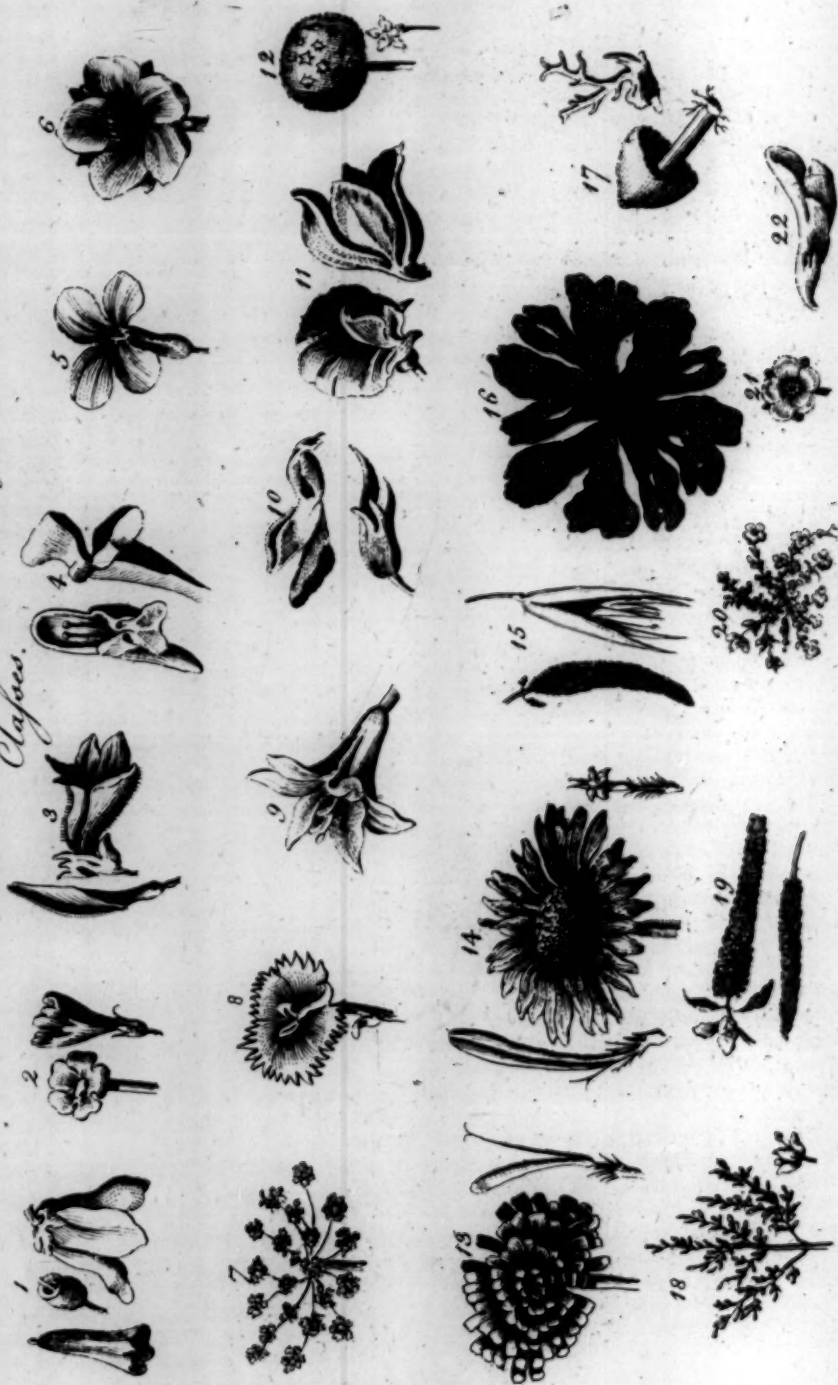
* **BOSWORTH** (Battle of) August 22, 1485. Richard III. having assembled his forces at Nottingham, hearing that the earl of Richmond's design was to march to London, he resolved to give him battle on his route; and with that view encamped between Leicester and Coventry. Henry, in the mean time, advanced to Lichfield, from whence the lord Stanley retired at his approach, and took post at Atherstone; and the earl having taken his measures with his two brothers, continued his march to Leicester, where he proposed to venture a decisive battle. In the neighbourhood of Tamworth, he dropped behind his army, and in a fit of musing lost his way; so that he was obliged to lie all night at a village, without daring to ask the road, for fear of being suspected and falling into the hands of his enemies. Next morning he made shift to rejoin his army at Tamworth, where, finding his friends had been greatly alarmed at his absence, he told them he had gone to confer with some particular

ticular noblemen, who did not chuse to appear as yet in his behalf. That same day he privately visited the lord Stanley at Atherstone; and on the morrow, being informed that Richard had marched from Leiceſter to give him battle, he reſolved to ſpare him one half of the way. On the twenty-second day of Auguſt, the two armies came in ſight of each other, at Boſworth, which is rendered famous in hiſtory by the battle which terminated the diſpute between the houſes of York and Lancaſter. Richard's army conſiſted of twelve thouſand men well accoutred. The command of the van he conferred on the duke of Norfolk; and he himſelf took poſt in the centre, with the crown upon his head, either as a mark of diſtinction, or a challenge to his adverſary. The earl of Richmond drew up his troops, amounting to five thouſand men, ill armed, in two lines; the command of the firſt he gave to the earl of Oxford, while he himſelf conducted the other. Lord Stanley, who quitted Atherſtone, took poſt in a piece of ground fronting the interval between the two armies; and his brother at the head of two thouſand men, ſtood facing him on the other ſide. Richard, ſuſpecting Stanley's deſign, ordered him to join his army, and receiving an equivocal answer, would have put his ſon to death, had not he been diverted from this purpoſe by the remonſtrances of his generals, who obſerved that ſuch a ſacrifice could be of no advantage to the royal cauſe, but would infallibly provoke Stanley and his brother to join the foe; though perhaps their intention was to remain neuter, and declare for the victor. Richard was perſuaded by this representation: but he committed a fatal error in leaving the two brothers at liberty to act as they ſhould think proper. His army being equal in number to that of Richmond and the Stanleys, when joined together; he ought to have poſted two bodies oppoſite to the brothers, with orders to attack them if they ſhould attempt to join the enemy, while he himſelf with the remainder might have given battle to Henry. The two leaders having harangued their ſoldiers, the earl of Richmond made a motion to the left, in order to avoid a morafs that divided the two armies; and, by this prudent meaſure, not only ſecured his right flank, but gained another advantage, in having the ſun at his back, while it ſhone full in the face of the enemy. Richard, ſeeing him approach, commanded the trumpets to ſound; and the battle began with a general diſcharge

of arrows, after which the king's army advanced to cloſe combat. The lord Stanley, perceiving that the duke of Norfolk extended his line to the left, in order to ſurround the enemy, ſuddenly joined the earl of Richmond's right wing, in order to ſuſtain the attack; and Norfolk, ſeeing this junction, made a halt to cloſe his files, which had been too much opened for the extension of the line. The match being now pretty equal, the fight was renewed, though not with equal ardour on both ſides. The king's troops ſeemed to act with reluctance, and were, in all probability, diſpirited by the conduct of the two Stanleys, not knowing but their example might be followed by others in the heat of the engagement: on the other hand, the earl of Oxford charged them with ſuch impetuouſity, as contributed to damp their courage, and fill their hearts with deſpondence. Richard, in order to animate them with his preſence and example, advanced to the front of the battle: there perceiving his competitor, who had quitted the ſecond line for the ſame purpoſe, he couched his lance, and clapping ſpurs to his horſe, ran againſt him with ſuch fury, that he killed his ſtandard-bearer Sir William Brandon, father of Charles Brandon, afterwards duke of Suffolk, and unhorſed Sir John Cheyney, an officer remarkable for his ſtrength and prowels. Henry, though he did not ſeem very eager to engage ſuch an antagoniſt, advanced to meet him, and kept him at his ſword's point, until they were parted by the ſoldiers, who interpoſed. While Richard made this furious effort againſt the perſon of his adverſary, Sir William Stanley declared for Richmond, and attacking the royaliſts in flank, drove their right wing upon the centre, which was ſo diſordered by the ſhock, that it began to fly with the utmoſt precipitation: while the earl of Northumberland, who commanded a ſeparate body, ſtood motionleſs, and reſuſed to act againſt the enemy. The king ſeeing all his endeavours ineffectual to rally his troops, which were by this time in the utmoſt confuſion, and either ſcornful to outlive the diſgrace of an overthrow, or dreading the thoughts of falling alive into the hands of his enemy, ruſhed into the miſt of the battle, where he fought with the moſt deſperate courage, until he was overpowered by numbers, and fell dead in the miſt of thoſe whom he had ſlain. Though the battle laſted about two hours, including the time ſpent in the purſuit, there was not above one thouſand of the royaliſts killed



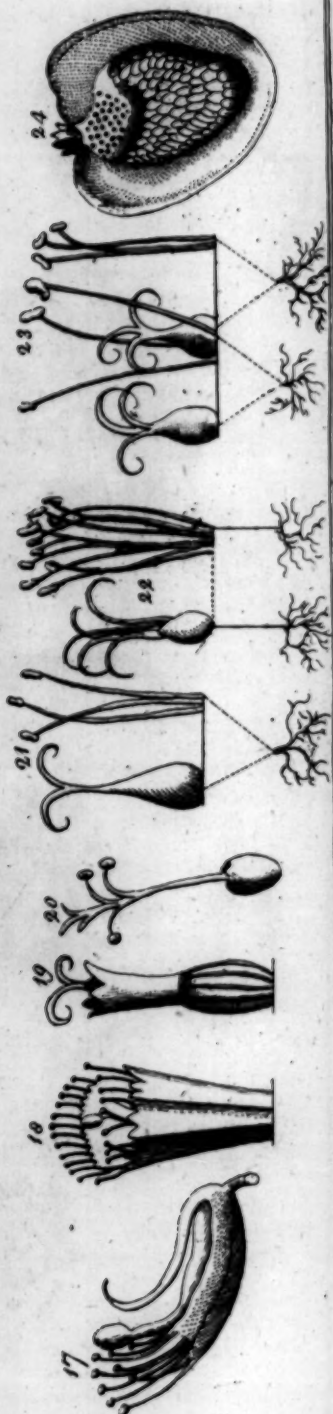
Turner's System of Botany.
Classes.





The Linnæan System of Botany.

Classes.



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killed on the occasion, because the greater part fled betimes without fighting; and the earl did not lose above an hundred men, of whom Sir William Brandon was the most considerable. On the side of the vanquished, besides Richard himself, the Duke of Norfolk lost his life; the lord Ferrars of Chartley, Sir Richard Radcliffe, and Sir Robert Brackenbury, the earl of Surrey, son to the duke of Norfolk, was taken prisoner and confined in the Tower of London, from which, however, he was soon set at liberty. The earl of Northumberland and several partisans of Richard were taken into favour; and others had the good fortune to escape: but Catesby the infamous minister and confidant of the tyrant who had so villainously betrayed Hastings, having fallen into the hands of the victors, was executed in two days after the battle at Leicester, with some others of the same stamp, who had devoted themselves to the service of Richard. Immediately after the engagement, the earl of Richmond fell down upon his knees in the open field, and thanked the Almighty for the blessing he had bestowed on his arms: then riding up to an eminence, he applauded the soldiers for their valiant behaviour, and promised to reward them according to their deserts. Richard's crown being found among the spoils of the field, was, by the lord Stanley, placed upon the head of Henry, who was saluted as king by the whole army; and from that moment he assumed the title. Richard's body being stripped stark naked, and covered with wounds, filth, and blood, was thrown over a horse's back, with the arms on one side and the legs on the other, and carried to Leicester, where after having been exposed two days, and treated with the utmost indignity, it was buried in the abbey-church in a private manner; though Henry, in respect to his family, ordered a tomb to be erected over his grave. Such was the end of Richard the third, the most cruel, unrelenting tyrant that ever sat on the throne of England. He seems to be an utter stranger to the softer emotions of the human heart, and entirely destitute of every social sentiment. His ruling passion was ambition, for the gratification of which he trampled upon every law, both human and divine: but this thirst of dominion was unattended with the least mark of generosity, or any desire of rendering himself agreeable to his fellow creatures: it was the ambition of a savage, not of a prince; for he was a very solitary being, altogether

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detached from the rest of mankind, and incapable of that satisfaction which results from private friendship, and disinterested society. We must acknowledge, however, that after his accession to the throne, his administration in general was conducted by the rules of justice, that he enacted salutary laws, and established wise regulations; and that, if his reign had been protracted, he might have proved an excellent king to the English nation. He possessed an uncommon solidity of judgment, a natural fund of eloquence, the most acute penetration, and such courage as no danger could dismay. He was dark, silent, and reserved, and so much master of dissimulation, that it was almost impossible to dive into his real sentiments, when he wanted to conceal his designs. His stature was small, his aspect cloudy, severe, and forbidding; one of his arms was withered, and one shoulder higher than the other; from which circumstances of deformity he acquired the epithet of Crook-back. Richard III. was the last of the Anjervin race, surnamed Plantagenet, which had possessed the crown of England for the space of three hundred and thirty years: but he was not the last male of that family in England: for the earl of Warwick, son to his brother Clarence, was still alive, and the only remaining branch of all the numerous posterity of the third Edward, which had been totally extinguished in the civil war; a war which had raged for thirty years, and was terminated by the battle of Bosworth, after having cost the lives of above one hundred thousand Englishmen, including a great number of princes of the house of York and Lancaster.

BOTANIST, one skilled in botany, and capable of assigning to every plant its proper characters and name.

BOTANY, the science of plants, their several kinds, their forms, virtues, and uses.

The most eminent botanists among the ancients were Hippocrates, Theophrastus, Dioscorides, Pliny, Galen, &c. In the sixteenth century, the ancient botany was revived by Leoniceus, Brasavolus, Cordus, Fuchsius, Mathiolas, Dalechampius, &c. These were soon after joined by others, and by their industry the art was first reduced into a body or system; as Gesner, Dodonæus, Cæsalpinus, Clusius, Lobel, Columma, Prosper Alpinus, the two Bauhins, Plunket, Bucconi, &c. These were succeeded by others, who have laboured successfully to bring the science of
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botany still nearer to perfection. Among these are Morison, Malpighi, Hermannus, Ray, Magnol, Tournefort, Sloane, Sherrard, Boerhaave, Linnæus, and many others.

The science of botany is differently explained by different authors; but the two systems of Tournefort and Linnæus more especially deserve our consideration.

According to Tournefort, all plants are ranged under one or other of the following classes, viz. 1. Plants with monopetalous, campaniform, or bell-fashioned flowers. 2. Those with monopetalous, infundibuliform, or funnel-like flowers. 3. Plants with anomalous monopetalous flowers. 4. Plants with polypetalous labiated flowers. 5. Plants with polypetalous cruciform flowers. 6. Plants with polypetalous, rosaceous flowers. 7. Plants with polypetalous, rosaceous, and umbellated flowers. 8. Plants with caryophyllous or pink-like flowers. 9. Plants with liliaceous or lily-like flowers. 10. Plants with polypetalous papilionaceous flowers. 11. Plants with polypetalous anomalous flowers. 12. Plants with strobilous flowers. 13. Plants with semistrobilous flowers. 14. Plants with radiated flowers. 15. Plants with staminateous flowers. 16. Plants without flowers, but having visible seeds. 17. Plants with neither visible flowers nor seeds. 18. Trees with apetalous flowers. 19. Trees with apetalous amentaceous flowers. 20. Trees with monopetalous flowers. 21. Trees with rosaceous flowers. 22. Trees with papilionaceous flowers. See the articles **MONOPETALOUS**, **CAMPANIFORM**, &c. See Plate XIII.

Linnæus has established an entirely new system of botany, founded on the number and different structure observable in the male and female parts of generation of each plant; the former of which is called stamen, or stamina, where there are more than one of them; and the latter pistil. See the articles **STAMEN** and **PISTIL**.

From the number and situation of the stamina, he has arranged the whole family of plants under twenty-four classes, viz. 1. The monandria. 2. Diandria. 3. Triandria. 4. Tetrandria. 5. Pentrandria. 6. Hexandria. 7. Heptandria. 8. Octandria. 9. Enneandria. 10. Decandria. 11. Dodecandria. 12. Icosandria. 13. Polyandria. 14. Didynamia. 15. Tetradynamia. 16. Monadelphia. 17. Diadelphia. 18. Polyadelphia. 19. Syngenesia. 20. Gynandria. 21. Monoecia. 22. Dio-

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ecia. 23. Polygamia. 24. Cryptogamia. See the articles **MONANDRIA**, **DIANDRIA**, &c. See Plate XIV.

These are the general classes or plants established by that excellent botanist; who farther subdivides them into orders, which he denominates monogynia, digynia, trigynia, &c. from the number of pistils, or female parts of generation, found in each plant. See articles **MONOGYNIA**, **DIGYNIA**, **TRIGYNIA**, &c.

The same celebrated naturalist has likewise distributed the vegetable part of the creation into different orders, from the form and structure of the calix, or cup, of their flowers, from the number of pistils, or female parts of generation, in each plant, &c.

BOTRYS, in botany, a low somewhat hairy plant, of which there are two species, called Jerusalem oak, and Mexico tea; both natives of the southern parts of Europe, and sown annually with us in gardens. The infusions, which are not unpalatable, drank as tea, are said to be of service in humoral asthma and coughs, and other disorders of the breast: they are supposed also to be antispasmodic and antihysteric.

BOTTOM, in navigation, the channel of rivers and harbours, the body or hull of a ship: thus, in the former sense, we say, a gravelly bottom, sandy bottom, &c. and in the latter sense, a British bottom, a French bottom, &c.

BOTTOMRY, in commerce, a contract for the borrowing money upon the keel or bottom of a ship; that is to say, when the master of a ship binds the ship itself, that if the money be not paid by the time appointed, the creditor shall have the said ship.

BOTTOMRY is also where a person lends money to a merchant who wants it in traffic, and the lender is to be paid a greater sum at the return of the ship, standing to the hazard of the voyage. On which account, though the interest be greater than what the law commonly allows, yet it is not usury, because the money being furnished at the lender's hazard, if the ship perishes, he shares in the loss.

* **BOULTER** (HUGH) archbishop of Armagh, primate and metropolitan of all Ireland, was born in London, and was much distinguished by his learning, virtue, humanity, and natural endowments. He was educated at Merchant-Taylors school, and at Christ-Church college, Oxford, and afterwards at Magdalen college.

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In 1700, he was appointed chaplain to Sir Charles Hedges, principal secretary of state, and also to Dr. Thomas Tenison, archbishop of Canterbury; and was soon after preferred to the parsonage of St. Olave, Southwark, and the archdeaconry of Surry. In 1719, he was commanded to attend King George I. to Hanover as his chaplain, where, at the king's desire, he took Prince Frederic under his care, to instruct him in the English tongue, and was the same year promoted to the bishopric of Bristol and deanery of Christ-Church. While he was thus employed in one of his visitations, he received a letter by a messenger from the secretary of state, acquainting him that his majesty had nominated him to the bishopric of Armagh. Taking a few hours to recollect himself, he called for a pen and ink, and sent an answer by the messenger, in which he declined the honour the king intended him; but the messenger was soon dispatched back, with his majesty's absolute commands that he should accept the post, on which he submitted to the king's pleasure. On his arrival in Ireland, in 1724, he immediately set about studying the real and solid interest of that kingdom. In innumerable instances, he exerted himself in the noblest acts of beneficence; in seasons of the greatest scarcity, he was more than once instrumental in preventing a famine which threatened that nation. On one of these occasions, he distributed vast quantities of corn throughout the kingdom, for which the house of commons passed a vote of public thanks. He had great compassion for the poor clergy of his diocese, who were disabled from giving their children a proper education; and he maintained several of the children of such in the university; he erected four houses at Drogheda, for the reception of clergymen's widows, and purchased an estate for the endowment of them. His charities for augmenting small livings and buying glebes amounted to upwards of thirty thousand pounds, besides what he devised by will for the like purposes in England. In short the instances he gave of his generosity and benevolence of heart, his virtue, his piety, and his wisdom, are almost innumerable. This excellent prelate died the 2d of June, 1742, and was interred in Westminster-Abbey, where a beautiful marble monument is erected to his memory.

BOUNTY, in commerce, a premium paid by government to the exporters of cer-

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tain British commodities, as sail-cloth, gold and silver lace, fish, corn, &c. See **SAIL-CLOTH, LACE, FISH, CORN, &c.**

BOUTANT, or **ARCH-BOUTANT**, in architecture, a flat arch, or part of an arch, abutting against the reins of a vault, to prevent its giving way.

A *pillar BOUTANT*, a large chain or pile of stone, made to support a wall, terrace, or vault.

BOW, *Arcus*, a weapon made of steel, wood, horn, or other elastic matter, which, after being bent by means of a string fastened to its two ends, in returning to its natural state, throws out an arrow with prodigious force: The use of the bow is of the earliest antiquity. It has likewise been the most universal of all weapons, having obtained amongst the most barbarous and remote people, who had the least communication with the rest of mankind. The bow is a weapon of offence amongst the inhabitants of Asia, Africa, and America, at this day; and in Europe, before the invention of fire-arms, a part of the infantry were armed with bows. Lewis XI. first abolished the use of them in France, introducing in their place, the halbert, pike, and broad-sword. The long bow was formerly in great vogue in England, and many laws were made to encourage the use of it. The parliament under Henry VII. complained of the disuse of long bows, heretofore the safeguard and defence of this kingdom, and the dread and terror of its enemies.

BOW, in naval architecture, the round part of a ship's side, forward, reaching from where the planks begin to bend inward, till they close at the stem or prow. A ship with a narrow bow commonly sails faster than with a broad one; but is not so well calculated for a high sea, being apt, for want of sufficient resistance, to plunge her fore part very deep, and endanger the masts and rigging, as well as strain the hull: the former of these is called, by sea-men, a *lean*, and the latter a *bluff* bow.

BOW, in music, a small machine, which, being drawn over the strings of a violin and other musical instruments makes it resound. It is composed of a small stick, to which are fastened eighty or an hundred horse-hairs, and a screw which serves to give these hairs the proper tension. In order that the bow may touch the strings briskly, it is usual to rub the hairs with rosin.

BOW, among artificers, an instrument in use among gunsmiths, locksmiths, watch-makers, &c. for making a drill go. Among

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turners, it is the name of that pole fixed to the ceiling, to which they fasten the cord that whirls round the piece to be turned.

BOWS of a *Saddle*, two pieces of wood laid archwise to receive the upper part of a horse's back, to give the saddle its due form, and to keep it tight.

BOWLINE, amongst seamen, a rope, fastened to the lee or perpendicular edge of the square sails, in three or four parts, called bridles; they are only used on the weather or wind side, to keep the ridge of the sail tight forward, which would otherwise be always shivering as the ship sails on a scant side wind. See **CLOSE-HAULED**.

BOWSPRIT, in naval affairs, a large boom or mast which projects over the stem, to carry sail on, and govern the fore part of the ship to counter-balance the sail carried behind, or in the after-parts; and likewise to support the fore-masts, by ropes stretched from the mast-head to the outer-end of the bowsprit, called stays. See **BOOM** and **STAYS**.

BOX, in a general sense, a small chest or coffer for holding things.

BOX of a *Plough*, the cross piece in the head of a plough, which supports the two crow-staves. See **PLOUGH**.

BOX, or **BOX-TREE**, in botany, the English name of *buxus*.

BOXING, in navigation, the act of bracing a ship's fore-mast or head-sails aback, i. e. on the wind-side of the mast, when, by the negligence of the man who steers, she had deviated from her course, and inclined her motion nearer to the direction of the wind than the sails would stand full. The use of boxing is to impress a greater force on the ship's fore-part than usual, to turn it further from the course of the wind, till she lies in the line of motion from which she had declined.

BOYAU, in fortification, a ditch covered with a parapet, serving as a communication between two trenches. It runs parallel to the works of the body of the place, and serves as a line of contravallation, not only to hinder the sallies of the besieged, but also to secure the miners.

* **BOYDE (WILLIAM)** earl of Kilmarnock, was the son of William Boyde, earl of Kilmarnock, who, in the rebellion in 1715, was very active in the service of the government, and died two years after. The earl was but thirteen years of age when his father died; part of the family estate was then alienated,

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and the rest pretty much encumbered. As he grew up, he lived above his income, which still farther reduced his estate; hence, with the hopes of mending his fortune, he, in the late rebellion, joined the pretender's standard, upon which he was made colonel of the guards, promoted to the rank of general, and declared of his privy council. His lordship was taken prisoner at the battle of Culloden, and brought to England, put into the Tower, and on Monday, the 28th of July, 1746, was, with lord Balmerino and the earl of Cromartie, conducted to the bar of the house of lords, in Westminster-hall, and tried by his peers, when pleading guilty he submitted himself to his majesty's mercy and clemency. Being brought the Wednesday following, to receive sentence, he delivered an elegant speech, after which sentence of death was pronounced upon him, and on the 18th of August, 1746, he was beheaded on Tower-hill, at forty-two years of age. The Rev. Mr. Foster, who attended him in the Tower, observes, that his whole deportment, from the time of his being condemned till his execution, was exceedingly becoming; and as he gave the most lively marks of sincere repentance, his behaviour in the hour of death was resigned, decent, and awful.

* **BOYNE**, *Battle of the*, July 1, 1690, at six o'clock in the morning, general Douglas, with young Schomberg, the earl of Portland and Overkirk, marched towards Slane-bridge, and passed the river with very little opposition. When they reached the farther bank, they perceived the enemy drawn up in two lines, to a considerable number of horse and foot, with a morass in their front; so that Douglas was obliged to wait for a reinforcement. This being arrived, the infantry were led on to the charge through the morass, while count Schomberg rode round it with his cavalry, to attack the enemy in flank. The Irish instead of waiting the assault, faced about and retreated towards Duleek with some precipitation; yet not so fast, but that Schomberg fell in among their rear, and did considerable execution. King James, however, soon reinforced his left wing from the center, and the count in his turn was obliged to send for assistance. At this juncture, William's main body, consisting of the Dutch guards, the French regiments, and some battalions of English, passed the river, which was waist high,

high, under a general discharge of artillery. King James had imprudently removed his cannon from the other side; but he had posted a strong body of musqueteers along the bank, behind hedges, houses, and some works raised for the occasion. They poured in a close fire upon the English troops before they reached shore, but it produced very little effect: then the Irish gave way, and some battalions landed without farther opposition; yet, before they could form, they were charged with great impetuosity by a squadron of the enemy's horse, and a considerable body of their cavalry and foot, commanded by general Hamilton, and advanced from behind some little hillocks, to attack those that were landed, as well as to prevent the rest from reaching the shore. His infantry turned their backs and fled immediately; but, the horse charged with incredible fury, both upon the bank and in the river, so as to put the unformed regiments in confusion. Then the duke of Schomberg passing the river in person, put himself at the head of the French protestants, and pointing to the enemy, "Gentlemen (said he) those are your persecutors;" with these words he advanced to the attack, where he himself sustained a violent onset from a party of Irish horse, which had broke through one of the regiments, and were now on their return. They were mistaken for English, and allowed to gallop up to the duke, who received two severe wounds in the head; but the French regiments being now sensible of their mistake, rashly threw in their fire upon the Irish while they were engaged with the duke; and instead of saving, shot him dead upon the spot. The fate of this general had well nigh proved fatal to the English army, which was immediately involved in tumult and disorder; while the infantry of king James rallied and returned to their posts with a face of resolution. They were just ready to fall upon the center, when king William having passed with the left wing, composed of the Danish, Dutch, and Inniskillin horse, advanced to attack them on the right. They were struck with such a panic at his appearance, that they made a sudden halt, and then facing about, retreated to the village of Dunore. There they made such a vigorous stand, that the Dutch and Danish horse, though headed by the king in person, recoiled. Even the Inniskilliners gave way; and that whole wing would have been routed, had

not a detachment of dragoons belonging to the regiments of Cunningham and Leviston, dismounted, and lined the hedges on each side of the defile, through which the fugitives were driven. There they did such execution upon the pursuers as soon checked their ardour. The horse which were broken, had now time to rally, and returning to the charge, drove the enemy before them in their turn. In this action general Hamilton, who had been the life and soul of the Irish during the whole engagement, was wounded and taken; an incident which discouraged them to such a degree, that they made no further efforts to retrieve the advantage they had lost. He was immediately brought to the king, who asked him if he thought the Irish would make any further resistance? and he replied, "Upon my honour, I believe they will; for they have still a good body of horse entire." William eying him with a look of disdain, repeated "Your honour! Your honour!" but took no other notice of his having acted contrary to his engagement, when he was permitted to go to Ireland, on promise of persuading Tyrconnel to submit to the new government. The Irish now abandoned the field with precipitation; but, the French and Swiss troops that acted as their auxiliaries, under Lauzun, retreated in good order, after having maintained the battle for some time with intrepidity and perseverance. As king William did not think proper to pursue the enemy, the carnage was not great. The Irish lost about fifteen hundred men, and the English about one third of that number; though the victory was dearly purchased, considering the death of the gallant duke of Schomberg, who fell in the eighty-second year of his age, after having rivalled the best generals of the age in military reputation. He was descended from a noble family in the Palatinate, and his mother was an English woman, daughter of lord Dudley. Being obliged to leave his country on account of the troubles by which it was agitated, he commenced a soldier of fortune, and served successfully in the armies of Holland, England, France, Portugal, and Brandenburg. He attained to the dignity of marshal in France, grandee in Portugal, generalissimo in Prussia, and duke in England. He professed the protestant religion; was courteous and humble in his deportment, cool, penetrating, resolute, and sagacious; nor was his probity in-

senior to his courage. This battle likewise proved fatal to the brave Caillimote, who had followed the duke's fortunes, and commanded one of the protestant regiments. After having received a mortal wound, he was carried back through the river by four soldiers; and though almost in the agonies of death, he with a cheerful countenance, encouraged those who were crossing to do their duty, exclaiming, "A la gloire mes enfans; a la gloire? To glory, my lads; to glory!" The third remarkable person, who lost his life on this occasion, was Walker the clergyman, who had so valiantly defended Londonderry against the whole army of king James. He had been very graciously received by king William, who gratified him with a reward of five thousand pounds, and a promise of further favour: but his military genius still predominating, he attended his royal patron in this battle; and being shot in the belly, died in a few minutes. The persons of distinction who fell on the other side, were the lords Dongan and Carlingford, Sir Neile O Neile, and the marquis of Hocquincourt. James himself stood aloof during the action, on the hill of Dunmore, surrounded with some squadrons of horse; and seeing victory declare against him, retired to Dublin, without making the least effort to reassemble his broken forces. Had he possessed either spirit or conduct, his army might have rallied, and been reinforced from his garrisons; for his loss was inconsiderable, and the victor did not attempt to molest his troops in their retreat; an omission which has been charged upon him as a flagrant instance of misconduct. Indeed through the whole of this engagement, his personal courage was much more conspicuous than his military skill. King James no sooner arrived at Dublin, than he assembled the magistrates and council of the city, and in a short speech resigned them to the fortune of the victor. He complained of the cowardice of the Irish; signified his resolution of leaving the kingdom immediately; forbid them, on their allegiance, to burn or plunder the city after his departure; and assured them, that though he was obliged to yield to force, he could never cease to labour for their deliverance. Next day he set out for Waterford, attended by the duke of Berwick, Tyrconnel, and the Marquis of Powis. He ordered all the bridges to be broken down behind him, and embarked in a vessel which had been prepared

for his reception. At sea he fell in with the French squadron, commanded by the sieur de Foran, who persuaded him to go on board one of his frigates, which was a prime failer. In this he was safely conveyed to France, and returned to the place of his former residence at St. Germain's. He had no sooner quitted Dublin, than it was also abandoned by all the papists. The protestants immediately took possession of the arms belonging to the militia, under the conduct of the bishop of Meath, and Limerick. A committee was formed to take charge of the administration; and an account of these transactions was transmitted to king William, together with a petition that he would honour the city with his presence.

BRACE, a couple or pair, and applied by huntmen to several beasts of game, as a brace of bucks, foxes, hares, &c.

BRACE, in architecture, a piece of timber framed in with bevel joints, the use of which is to keep the building from swerving either way. When the brace is framed into the kingposts, or principal rafters, it is by some called a strut.

BRACES, in naval affairs, the ropes fastened to the yard-arms or ends, to wheel or traverse them about the masts in a horizontal direction, for the more conveniently adapting the sails to the wind.

BRACELET, an ornament worn on the wrist, much used among the ancients.

BRACHIAEUS, in anatomy, an oblong, thick, and broad muscle, lying immediately on the anterior part of the lower half of the os humeri. The upper part of it is forked or sloped, and at the bending of the joint of the elbow, the lower part contracts.

BRACHIUM, ARM, in anatomy, one of the superior extremities of the human body, comprehending the scapula, the os humeri, the cubit, and the hand. See the **SCAPULA, ARM, HAND, &c.**

BRACHMANS, a sect of Indian philosophers. The ancient Brachmans lived upon herbs and pulse, and abstained from every thing that had life in it. They lived in solitude without matrimony, and without property; and they wished ardently for death, considering life only as a burden. The modern Brachmans make up one of the casts or tribes of the Banians. They are the priests of that people, and perform their office of praying and reading the law, with several mimical gestures, and a kind of wavering voice. They admit of rewards and punishments after this life;

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life; and have so great a veneration for cows, that they look on themselves as blessed, if they can but die with the tail of one of them in their hand. They have preserved some noble fragments of the knowledge of the ancient Brachmans. They are skilled arithmeticians, and calculate, with great exactness, eclipses of the sun and moon. They are remarkable for their religious austerities. One of them has been known to make a vow to wear about his neck a heavy collar of iron for a considerable time: another, to chain himself by the foot to a tree, with a firm resolution to die in that place; and another to walk in wooden shoes stuck full of nails on the inside.

BRACHYGRAPHY, the art of shorthand writing.

The word is compounded from the Greek *Brachys*, short, and *Grappo*, to write.

BRACKET, a kind of wooden stay, serving to support shelves, and the like.

BRACKETS, in naval architecture, short crooked timbers resembling knees, fixed in the frame of a ship's head to support the gratings.

BRACKETS, in gunnery, the cheeks of the carriage of a mortar: they are made of strong planks of wood, of almost a semicircular figure, and bound round with thick iron plates; they are fixed to the beds by four bolts, which are called bed-bolts; they rise up on each side of the mortar, and serve to keep her to any elevation, by means of some strong iron bolts, called bracket-bolts, which go through these cheeks or brackets.

* **BRACKLEY**, a borough town in Northamptonshire; it has a market on Wednesdays, and five fairs, on Wednesday after February 25, for horses, cows, and sheep; on the third Saturday in April, for horses, cows, and hogs; on Wednesday after June 22, for horses and cows; on Wednesday before October 10, for hiring servants, horses, and cows; and December 11, for horses, cows, and sheep. It is seated on the edge of the county, next Buckinghamshire, on a branch of the river Ouse. It is an ancient and large corporation town, containing two parish churches, and is governed by a mayor and aldermen, and sends two members to parliament. It had formerly a college, which is turned into a free-school. The market is but small. It is sixty-four miles north-west from London. Lat. 52. o. N.

BRACTEARIA, in natural history, a genus of talcs, composed of small plates

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in form of spangles, each plate being either very thin, or divisible into very thin ones.

* **BRADLEY** (Dr. JAMES) fellow of the Royal Society in London, and member of the Academy of Sciences and Belles Lettres of Paris, &c. was born at Shireborn, in Gloucestershire, in 1692, and educated at Oxford, and in 1719 was instituted to the vicarage of Bridflow, in Herefordshire. He received the first rudiments of the mathematics from his uncle, Dr. James Pound, who resided at his living in Essex, and on the death of John Kiel, M. D. was, in 1721, chosen Savilian professor of astronomy in Oxford, on which he resigned his living. Notwithstanding his innate modesty he was soon distinguished by the friendship of sir Isaac Newton, lord chancellor Macclesfield, and Dr. Edmund Halley, his colleague in the Savilian professorship. In 1730 he succeeded Mr. Whitehead as lecture-reader of astronomy and experimental philosophy, in the university of Oxford; and, at the decease of Dr. Halley, was chosen astronomical observator at the Royal Observatory at Greenwich, and honoured with the degree of doctor of divinity. In 1747 he published his Letters on the apparent Motion observed in some of the fixed Stars; and on account of this curious discovery, obtained the annual gold prize medal from the Royal Society. In consequence of this letter, his late majesty caused him to be paid a thousand pounds, to repair the old instruments in that observatory, and for providing new ones, which enabled him to furnish it with the noblest and most accurate apparatus in the known world. He was remarkable for the evenness of his temper, and for his amiable disposition, and was particularly distinguished for his modesty and taciturnity; yet when drawn into conversation, none were more ready, more open, or more clear, nor took more pains to adapt himself to the capacity and understanding of those with whom he conversed. He was always temperate, easy of access, humane, benevolent, and kind, was never tenacious of his own opinion, and was free from bigotry and ostentation. He died the 13th of July, 1762, in the seventieth year of his age.

BRADS, among artificers, a sort of nails used in building, which have no spreading heads. They are distinguished by ironmongers, by six names, as joiner's brads, flooring brads, batten-brads, bill-brads, or quarter-heads, &c. Joiner's brads

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brads are for hard wainscot, batten-brads for soft wainscot; bill-brads are used when a floor is laid in haste, or for shallow joists subject to warp. See **NAIL**.

BRADYPUS, in zoology, a genus of quadrupeds, of the order of the anthropomorpha of Linnæus, otherwise called *igzæus*, and in English, the sloth; the characters of which are, that its feet have no great toes, and are made for climbing.

Of this genus there are two species. 1. The American sloth, with a short tail, and only three toes on each foot. 2. The Ceylon sloth, with only two toes on each foot, and no tail.

BRAGGET, drink made of malt, honey, and spices, much used in Wales.

BRAILS, in naval affairs, ropes fixed to different places on the mizen above and below, to gather it up close to the mast when it is not required.

BRAILS, a general name given to all the ropes which haul the bottoms, edges, and lower corners of the other sails up to their yards, for the more easily furling them; and this is called brailing them up, or hauling them up in the brails.

BRAIN, in anatomy, says Winflow, a name given to all that mass which fills the cavity of the cranium, and which is immediately surrounded by two membranes, called meninges by the Greeks, and matters by other ancients, because they were commonly of opinion that these membranes were the origin, and, as it were, the mother of all the other membranes of the body.

This general mass is divided into three particular portions; the cerebrum, or brain, properly so called; the cerebellum, and medulla oblongata. To these three parts contained within the cranium, a fourth is added, which fills the great canal of the spina dorsa by the name of medulla spinalis, being a continuation of the medulla oblongata.

The meninges, or membranes are two in number, one of which is very strong, and lies contiguous to the cranium; the other is very thin, and immediately touches the brain. The first is named *dura mater*; the second *pia mater*, which is again divided into two, the external *famina* being termed *arachnoides*, and the internal retaining the common name of *pia mater*. See **DURA MATER** and **PIA MATER**.

The cerebrum, properly so called, is a kind of medullary mass, of a moderate

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consistence, and of a greyish colour on the outer surface, filling all the superior portion of the cavity of the cranium, or that portion which lies above the transverse septum. The upper part of the cerebrum is of an oval figure, like half an egg cut lengthwise, or rather like two quarters of an egg cut lengthwise, and parted a little from each other. It is flatter on the lower part, each lateral half of which is divided into three eminences, called lobes, one anterior, one middle, and one posterior.

The substance of the cerebrum is of two kinds, distinguished by two different colours; one part of it, which is the softer, being of a greyish or ash colour; the other, which is more solid, very white. The ash-coloured substance lies chiefly on the outer-part of the cerebrum, like a kind of cortex; from whence it has been named *substantia corticalis* or *cinearea*. The white substance occupies the inner part, and is named *substantia medullaris*, or simply *substantia alba*.

The cerebrum is divided into two lateral portions, separated by the *fals*, or great longitudinal septum of the *dura mater*. They are generally termed hemispheres; but they are more like quarters of an oblong spheroid. Each of these portions is divided into two extremities, one anterior, and one posterior, which are termed the lobes of the cerebrum, between which there is a large inferior protuberance which goes by the same name; so that in each hemisphere there are three lobes, one anterior, one middle, and one posterior.

The anterior lobes lie upon those parts of the *os frontis* which contribute to the formation of the orbits and of the frontal sinusses, commonly called the anterior fossæ of the *basis cranii*. The posterior lobes lie on the transverse septum; and the middle lobes, in the middle of lateral fossæ of the *basis cranii*.

Each lateral portion of the cerebrum has three sides; one superior, which is convex; one inferior, which is uneven; and one lateral, which is flat; and turned to the *fals*. Through the whole surface of these three sides we see inequalities or windings like the circumvolutions of the intestines, formed by waving streaks or furrows very deep and narrow, into which the septa, or duplicatures of the *pia mater* insinuate themselves, and thereby separate these circumvolutions from each other.

Near the surface of the cerebrum, these circumvolutions are at some distance from

from each other, representing serpentine ridges; and in the internices between them, the superficial veins of the cerebrum are lodged, between the two laminae of the pia mater, by an infinite number of very fine vascular filaments, as may be seen by pulling the circumvolutions a little asunder with the fingers.

When they are cut transversely, we observe that the substantia alba lies in the middle of each circumvolution; so that there is the same number of internal medullary circumvolutions as of external cortical ones; the first representing white laminae invested by others of an ash-colour; but the cortical substance is in many places thicker than the medullary.

The anterior and middle lobes of the cerebrum on each side are parted by a deep narrow sulcus, which ascends obliquely backward, from the temporal ala of the os sphenoides to near the middle of the os parietale; and the two sides of this division have each their particular ridges and circumvolutions, which gives a very great extent to the cortical substance. This sulcus is termed fissura magna silvii, or simply fissura cerebri.

The corpus callosum is a white convex body, being a middle portion of the medullary substance, whose surface is covered by the pia mater. Along the middle of its surface, from one end to another, there is a kind of raphe formed by a particular intertexture of fibres, which cross each other. After its uniting with the cortical substance, a medullary arch or vault of an oval figure is formed.

Under this arch are two lateral and shallow cavities, separated by a transparent medullary septum; and generally called the anterior superior ventricles of the cerebrum.

The above transparent partition is generally called the septum lucidum, and lies directly under the raphe or suture of the corpus callosum, of which it is a continuation.

The septum lucidum is united by its lower part to the anterior portion of that medullary body improperly called the fornix, with three pillars; because it is thought to bear some resemblance to the arches of ancient vaults.

The fornix being cut off and inverted, or quite removed, we first perceive a vascular web, called plexus choroides, and several eminences more or less covered by the expansion of that plexus. There are four pairs of eminences, which follow each other very regularly, two large and two

small. The first pair of larger eminences are named corpora striata, for their having a great number of white and ash-coloured streaks alternately disposed thro' their substance; and the second pair, thalami nervorum opticorum, because these nerves arise chiefly from them. The four small eminences are closely united together, the anterior being called nates, and the posterior testes; though it would be better to call them simply, anterior and posterior tubercles.

Immediately before these tubercles, there is a single eminence called glandula pinealis, a small, soft, greyish body, about the size of an ordinary pea, irregularly round, and sometimes of the figure of a pine apple. This gland, which Des Cartes will have to be the seat of the soul, has been often found to contain gravel.

Between the basis of the anterior pillar of the fornix, and the anterior part of the union of the optic thalami, lies a cavity or fossula, called infundibulum. It runs down towards the basis of the cerebrum, contracting gradually, and terminates by a membranous canal in a softish body, situated in the fella sphenoidalis, named glandula pituitaria. The infundibulum opens above, immediately before the optic thalami, by an oval hole, called foramen commune anterior, and consequently communicates with the lateral ventricles.

The cerebellum is contained under the transverse septum of the dura mater. It is broader laterally than on the fore or back-sides, flatted on the upper-side, and gently inclined both ways, answerable to the septum, which serves it as a kind of tent or cieling. On the lower side it is rounder, and on the back-side divided into two lobes, separated by the occipital septum of the dura mater.

It is made up, like the cerebrum, of two substances; but has no circumvolutions on its surface. Its sulci are pretty deep, and disposed in such a manner as to form that flat strata, more or less horizontal, between which the internal lamina of the pia mater insinuates itself by a number of septa, equal to that of the strata.

Under the transverse septum, it is covered by a vascular texture, which communicates with the plexus choroides. It has two middle eminences called appendices vermiformes; one anterior and superior, which is turned forward; the other posterior and inferior, which goes backward. There are likewise two latter appendices, both turned outward. They are

are termed *vermiformes* from their resemblance to a large portion of an earth-worm.

Besides the division of the cerebellum into lateral portions, or into lobes, each of these lobes seems to be likewise subdivided into three protuberances, one anterior, one middle or lateral, and one posterior; but they are not in all subjects equally distinguished either by their convexity or limits; but they may always be distinguished by the direction of their strata, those of the middle and anterior protuberances being less transverse than in the posterior.

When we separate the two lateral portions or lobes, having first made a pretty deep incision, we discover first of all the posterior portion of the medulla oblongata; and in the posterior surface of this portion, from the tubercula quadrigemina, all the way to the posterior notch of the body of the cerebellum, we observe an oblong cavity, which terminates backward, like the point of a writing pen. This cavity is called the fourth ventricle.

The medulla oblongata is a medullary substance, situated from before backward, in the middle part of the basis of the cerebrum and cerebellum, without any discontinuation, between the lateral parts of both these bases; and therefore it may be looked upon as one middle medullary basis, common to both cerebrum and cerebellum, by the reciprocal continuity of their medullary substances, through the great notch in the transverse septum of the dura mater, which common basis lies immediately on that portion of the dura mater which lines the basis of the cranium. The medulla oblongata is therefore justly esteemed to be a third general part of the whole mass of the brain, or as the common production of united elongation of the whole medullary substance of the cerebrum and cerebellum.

It is extremely difficult, if not altogether impossible, to examine or demonstrate it as we ought, in its natural situation; but we are obliged to do both on a brain inverted. However, to prevent false ideas either in viewing ourselves, or in shewing to others, the medulla oblongata thus inverted, it is very necessary often to call to mind that all that appears superior in that situation, is inferior in the natural state.

The lower side of the medulla oblongata, in an inverted situation, presents to our view several parts, which are in general either medullary productions, trunks of nerves, or trunks of blood vessels.

The chief medullary productions are

these: the large or anterior branches of the medulla oblongata, which have likewise been named *crura anteriora*, *femora* and *brachia medullæ oblongatæ*, and *pedunculi cerebri*; the transverse protuberance, called also *processus annularis* or *pons Varolii*; the small or posterior branches, called *pedunculi cerebelli*, or *crura posteriora medullæ oblongatæ*; the extremity or cauda of the medulla oblongata, with two pairs of tubercles, one of which is named *corpora olivaria*, the other *corpora pyramidalia*: and to all these productions we must add a production of the *infundibulum* and two medullary papillæ.

We must observe in general concerning the eminences of the medulla oblongata, that those which are medullary on their outsidés or surfaces, are interiorly either entirely cortical, or partly cortical and partly medullary, or formed by a singular mixture of these two substances.

From this common portion of the cerebrum and cerebellum, arise almost all the nerves which go out of the cranium through the different foramina by which its basis is perforated. It likewise produces the medulla spinalis, which is no more than a common elongation of the cerebrum and cerebellum, and of their different substances; and therefore the medulla oblongata may be justly said to be the first origin or primitive of all the nerves which go out through the *spina dorsalis*, and consequently of all the nerves of the human body. See *MEDULLA Spinalis*, and *NERVE*. *Winslow's Anatomy*.

Uses of the BRAIN, and of its Appendages in general.—We are obliged to the great Malpighi for the first and best instruction concerning the manner of examining the structure of the brain, especially that of the two substances of which it is made up, and for putting us in a condition to be able to conjecture something about its uses. The experiments and observations of that illustrious and faithful searcher into nature, having been repeated by several excellent philosophers, and confirmed by comparative anatomy, leaves us no room to doubt but that the brain is a secretory organ, or, as it is called by anatomists, a gland.

It is to no purpose to dispute about words, when we are agreed as to the things themselves. Anatomists have for many years past understood by the word gland, an organ fitted to separate some particular fluid from the mass of blood, as universally as they mean by the word muscle, all sorts of fleshy fibres capable of contracting.

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contraction : and this last term might be cavilled at and rejected as justly as the other.

The whole matter of secretions must be owned to be very obscure ; but it is to be hoped that the brain and liver will some time or other lead us so far into the knowledge of it, as at least to be able to distinguish truth from falsehood.

The infinite number of small secretory clusters of glands in the brain, strain or filter the mass of blood carried to them by the numerous ramifications, and separate from it an excessively fine fluid : the remaining blood being conveyed back by the same number of venal extremities into the sinusses of the dura mater, and from thence into the jugular and vertebral veins.

The subtle fluid, commonly called animal spirit, nervous juice, or liquor of the nerves, is continually forced into the medullary fibres of the white portion of the cerebrum, cerebellum, medulla oblongata, and medulla spinalis ; and by the intervention of these fibres, supplies and fills the nerves, which are a continuation of them.

All the nervous ropes, as they pass through the foramina of the cranium and vertebrae, are accompanied by particular elongations of the pia and dura mater. Those of the dura mater serve them for vaginæ in their passage through the bony openings. Those of the pia mater not only accompany and invest each nervous rope, but also form internal septa, between all the filaments of which each rope consists. It is known from many experiments, that the nerves are the primitive or original organs of all muscular motion, and of all animal sensation ; and that these two functions depend in general on the brain ; but we are ignorant of the nature of this dependence, and of the particular use of the medullary fibres of the nervous fluid, and of the membranaceous productions which accompany the fibres and nerves.

Neither is there any thing in what has been said concerning the design or particular uses of the superficial conformation of the cerebrum and cerebellum, or of the different configuration of their turnings, circumvolutions, eminencies, depressions, expansions, and various folds. It may be affirmed in general, that by this structure the extent of the secretory organ of the nervous fluid is increased very considerably, and the particular functions of each nervous rope distinguished, and likewise their general and reciprocal correspondence, both in regard to the exquisiteness of the

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organs of sensation, and the activity of the organs of motion.

The falx of the dura mater hinders one portion of the cerebrum from pressing on the other, when we lie on one side. The transverse septum serves for a tent to the cerebellum, and defends it from a mortal compression, which it must otherwise be liable to from the cerebrum, especially when we walk or jump.

The septum and productions of the pia mater connect and strengthen all the circumvolutions, divisions, and ridges of the cerebrum, cerebellum, &c. and sustain in a general and almost incomprehensible manner all the branches and ramifications of the blood vessels, all the medullary filaments, and all the elongations and ropes that depend on these. *Winslow's Anatomy.*

BRAMBLE, or **BRAMBLE-BUSH**, in botany, the English name of the *rubus* of authors. See **RUBUS**.

BRAMBLE-NET, otherwise called hallier, a net to catch birds in, of several sizes ; the great meshes must be four inches square ; those of the least size are three or four inches square ; and those of the largest five. In the depth, they should not be above three or four inches ; but as for the length, they may be enlarged at pleasure ; the shortest being eighteen feet long.

BRAMINS. See **BRACHMANS**.

BRAN, the skins or husks of corn, especially wheat ground, separated from the flour by a sieve or boulder.

The dyers reckon bran among the non-colouring drugs, and use it for making what they call the four waters, with which they prepare their several dyes.

Bran, also being of a porous spongy substance, is used, in pharmacy, as a suppurative and digestive medicine.

BRANCH, in botany, an arm of a tree, or a part sprouting out from the trunk, which helps to form the head or crown thereof. As branches have their outward parts common with the chief stem, so in like manner do their inward consist of a multitude of tubes, which are also provided with a number of small glands, veins, and muscles, interspersed here and there, where the sap coming from the first canal is rendered much more delicate.

BRANCH, a term in genealogy and anatomy. Thus we say, the branch of a family, the branch of an artery, the branch of a vein.

BRANCHES of a Bridle, in the manege, are two pieces of iron banded, which in the interval, between the one

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and the other, bear the bit-mouth, the cross-chains, and the curb; so that on the one end they answer to the head-stall, and on the other to the reins, in order to keep the horse's head in subjection.

It is to be observed, 1. That the farther the branch is from a horse's neck, the more effect it will have. 2. That short branches *ceteris paribus* are ruder, and their effects more sudden than those of longer. 3. That the branch is to be proportioned to the length of a horse's neck; and one may sooner err in choosing one too short than too long.

BRANCHES of *Ogives*, in architecture, the arches of Gothic vaults. These arches traversing from one angle to another diagonal-wise, form a cross between the other arches, which make the sides of the square, of which the arches are diagonals.

BRANCHERY, in the anatomy of plants, denotes the ramifications of the succiferous vessels dispersed through the parenchyma, or pulpy parts of fruits.

BRANCHIÆ, GILLS, in the anatomy of fishes, the parts corresponding to the lungs of land-animals, by which fishes take in and throw out again a certain quantity of water, impregnated with air. All fishes, except the cetaceous ones and the petromyzum, are furnished with these organs of respiration; which are always eight in number, four on each side the throat; that next the heart is always the least, the rest increasing in regular order as they stand near the head of the fish.

BRANCHIARUM FORAMINA, *Apertures of the Gills*. In most fishes there is only one aperture; in the cartilaginous ones, these apertures are ten in number, five on each side; and in the petromyzum or lamprey, there are no less than fourteen of these apertures, seven on each side. As to the cetaceous fishes, they have no aperture of this kind; and the reason seems to be, because they are furnished with lungs.

BRANDY, a spirituous and inflammable liquor, extracted from wine and other liquors by distillation, which is most generally performed by the common alembic; but sometimes also in balneum maris. See the article **DISTILLATION**.

The vessels used in this operation are commonly of copper; some distillers, in order to cool the brandy, make the neck of the matras very long, and of a serpentine or winding figure, in order to its passing through a tub of cold water.

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In order to distil brandy, they fill the cucurbit half full with the liquor they would extract it from, which they put over a moderate fire, till about the sixth part of it be distilled, or till they perceive that what falls into the recipient, is no longer inflammable. Brandy distilled a second time is called spirit of wine; and this spirit, purified again by one or by several distillations, is what they call spirit of wine rectified. With regard to brandy (we speak only of that which is distilled from wine) they who trade in it, choose it white, clear, of a good taste, and such as will bear the test or proof; that is to say, that when poured into a glass it forms on the top of it a little white lather, which, as it diminishes, makes a circle; there being no brandy but that which is well dephlegmated, and does not retain too much humidity, wherein this bead-proof, as it is called, will be entirely formed.

The chief use of brandy is as a drink, particularly in the northern countries, among the negroes of Guinea, who will sell one another for some bottles of brandy, and among the savages of Canada, who are extremely fond of it. Brandy is also used in medicine, to strengthen the nerves; and in dyeing, rectified spirits of wine being reckoned by the dyers among the non-colouring drugs.

Method of colouring BRANDY. All brandies, when first made, are as clear as water, and grow higher coloured by long keeping; however, they are artfully made of any colour several ways. To make a light straw-colour, use turmeric, or a little treacle; but the best way is to give it a colour or tincture with a little burnt sugar, made to a consistence; or syrup of elderberries may be used, which gives an admirable colour, and may be made deeper or lighter, according to the quantity you put in.

Besides the brandy made of wine, there is some also made of beer, cyder, syrups, sugar, molasses, fruit, grain, &c. however, these are not properly called brandy; but go under the general denomination of spirits. See **RUM, ARRACK, &c.**

Wine brandy made in France, is esteemed the best in Europe. They make it wherever they make wine; and for that purpose, use wine that is picked, rather than good wine. The chief brandies for foreign trade, and those accounted best, are the brandies of Bourdeaux, Rochelle, Cogniac, Charenton, the isle of Rhé, Orleans, the county of Blaisois, Poitou, Touraine.

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Touraine, Anjou, Nantes, Burgundy, and Champaign.

BRASIL, or BRAZIL, in natural history, is a red wood, brought from the province of that name in South America. What differences there are in the trees we know not: the woods brought to us, differ little otherwise than as different parts of one log, some pieces being richer in colour than others. This wood is called, by Caspar Bauhine, bastard red-saunders, *Pseudofant alumi rubrum seu arbor Brasilia*. Many have confounded it with the true red-saunders; but however the two trees may be allied in their botanic characters, the woods, chemically considered, are very obviously different; Brazil wood readily giving out its red colour to water, whilst saunders gives no red tinge to any aqueous liquor. The watery tincture of Brazil, however, is not quite so deep as that made in rectified spirit of wine, or in volatile alkaline spirits. The spirituous tincture stains warm marble of a purplish red, which, upon increasing the heat, becomes violet. Mr. du Fay informs us, in a paper upon this subject in the French Memoirs, that if the stained marble be covered with wax, and considerably heated, it changes through all the shades of brown, and fixes at last in a chocolate colour. The colour of the watery decoction is heightened by alum, and inclined to a crimson. A decoction made with alum, in the proportion of about one part of the salt to four of the wood, yields, upon adding alkaline ley or volatile spirits, a kind of crimson lake verging a little to violet.

A transparent crimson for water-colours is said to be made by boiling the wood in small wort, with a little tartar. A large proportion of tartar weakens the colour. All acids, if their quantity is considerable, have this effect: those of the mineral kingdom totally destroy it.

Brazil wood dyes woollen of a red colour, which does not want beauty, but has little durability. Mr. Hellot gives a pretty remarkable process, by which both the beauty and permanency of the dye are improved. He directs the wood, cut in small pieces, to be boiled in two fresh parcels of the hardest well-water that can be procured; the decoctions to be mixed together, and kept in a cask, till they ferment, grow stale, and appear ropy like an unctuous wine. The cloth is to be boiled for three hours with alum and tartar, in the proportion of six or eight ounces of the former,

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and two or less of the latter, to every pound, and afterwards kept moist, in a cool place, for eight or ten days, that it may be thoroughly penetrated by the salts. A quantity of the stale decoction of Brazil is made to boil in a copper, and some common coarse stuff, prepared as usual with alum and tartar, dyed in it: half as much more of the liquor is then added, and another piece of cloth dyed; so as that, between the two, about three fourths of the colour may be taken up. The cloth prepared as above is now to be dipped, and the liquor kept gently boiling, till it has taken the colour uniformly. The red, obtained by this process, is a lively and durable demi-scarlet: on exposure to the air for four months, in winter, it lost nothing: but on the contrary became deeper, and seem to gain a body. The same author gives another method of fixing the colour of Brazil by astringents: the dyes thus produced are not red, but coffees and purple-chestnuts, very beautiful and glossy; for this purpose he dilutes the stale decoction of Brazil with twice its quantity of water; and adds for every pound of cloth, about an ounce of powdered galls, and half an ounce of gum arabic. The cloth, prepared with alum and tartar, and kept moist for fifteen days, is boiled in this liquor, for an hour or two, according as the colour is wanted lighter or deeper, and suffered to grow thoroughly cold before it is washed.

* **BRAZIL, or BRASIL**, a country of South America, with the title of a principality, belonging to the presumptive heir of the king of Portugal. Its greatest breadth is seventeen degrees, it lying between thirty-five and sixteen degrees of west longitude, which make about one thousand miles; but along the coast, which is bordered with mountains, it is near two thousand miles, in which there are many good ports and harbours, where ships may ride in safety.

Brazil was discovered by accident, in 1500, on the 24th of April, by Don Pedro Alvarez Cabral, who gave it the name of the Holy Cross; and he being a Portuguese, that nation has possessed it almost ever since; though some time after, the Dutch threw off the Spanish yoke, and became masters of it, but were forced to leave it in 1655. The air of this country, though seated under the torrid zone, is indifferently mild and healthy, for people live there to an advanced age. The soil produces tobacco, cotton, Indian corn, and

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all sorts of fruit, besides sugar-canes, which flourish there admirably well. The Portuguese are settled on the coast of Brazil, the inland country being inhabited by savages of different nations. The Portuguese have divided it into fourteen governments or captainships, three of which are towards the north, Para, Maragnan, and Siara, and eleven on the east coast, from north to south, namely, Rio Grande, Paraiaba, Tamaraca, FERMAMBouc, SCREGIPPE, the Bay of All Saints, Rio dos Ilheos, Porto Seguro, Porto de Spiritu Sancto, Rio Janeiro, and St. Vincent.

The natives called Toupinambous, by which you may judge of the rest, are the size of the Europeans; they are a strong healthy people; their skin is of a red colour, like the rest of the Americans, but darker than those of the north, on account of their nearness to the sun. The men, women, and children go quite naked, and they have no hair on any part of their bodies, except the head. All the males have a hole bored through their under lips, in which they put a bit of bone as white as ivory, which stands out above an inch, and is secured by a broad head, which is placed between the lip and the gums; this is worn while they are very young; but when they are men grown, they change it for a green stone like an emerald; some have holes in their cheeks as well as lip, and adorn them in the same manner. In many parts of Brazil, they daub themselves all over with a sort of gum or balsam, and then roll themselves in down and small feathers, which gives them an odd frightful appearance. When the first colonies went over, they endeavoured to persuade the women to cover their nakedness, but could never prevail on them, for which they gave this reason, that as they went into the water to bathe several times in a day, it would be too troublesome to put any thing on and off, though never so slight. They have a beast not much unlike a cow, whose flesh tastes like beef, which they are very fond of; they likewise hunt a sort of deer, and when they would preserve a part of this or any other creature, they roast it thoroughly, for they never salt it, some keeping it at the fire twenty-four hours. The camel sheep is another remarkable animal, which is to be met with in several parts of South America, even as far as the Straights of Magellan; it is of the shape of a camel, but not so large, and has very fine wool, which is pretty long, and of the colour of dried roses. There is a sort of hog, which

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has different names in different places, but is most commonly known by the name of pecari, and has this very remarkable distinction, viz. the navel on its back. The agouti is a kind of hare, which partakes a good deal of the hog; it is of the size of a pig of two months old, with a head and body not unlike it, except the snout, which is not sharp.

The beast called a tyger is brown, and very unlike those of Europe. They have, properly speaking, no such animal as a lion. They have a sort of deer, which are much less than ours, with hair as long as that of a goat, and small horns. The pac, is a quadruped of the size of a hound, with an ugly head, and a fine skin, which is spotted with white, grey, and black; the flesh eats like veal. There are rats as big as squirrels, and of the same colour, which taste like rabbits. The opossum is an animal that has something of the rat, and fox.

The sluggard or sloth, is about the bigness of a middle sized fox, and is in length from the neck to the tail a little above a foot.

The different kinds of monkies are so numerous, that it would be a difficult matter to reckon them all up; some of them are as large as grey-hounds, and others as small as rats.

Brazil produces great variety of plants and trees; the most useful is the root manioc, or mandioc, for of this they make their bread. There are several sorts of it, but they all contain a poisonous juice, which must be squeezed out before it is used. Ananas or pine-apples are now well known in these parts. They likewise have rice, Indian corn, potatoes, bananas, melons, pumpions, water-melons, cucumbers, beans, figs, and many other vegetable productions brought from Europe. In short, every part of Brazil is well stocked with variety of trees, inasmuch, that the first planters were forced by cutting to make a road through them, with incredible pains and charge. Brazil wood is very well known every where for its usefulness in dying. The trunk of this tree is knotty, and two or three fathoms thick, and smells very agreeably. It is always stripped of its bark before it is sold.

The gums, rosins, and balsams, in short all the juices which flow upon incisions from divers sort of trees, as well as the different oils extracted from thence, are not to be numbered. With regard to the religion of the Brazilians, we can say nothing.

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nothing, for they have no public assemblies on that account, and though they are called idolaters, we cannot find they have images of any pretended gods.

In their marriages they may take any relation except the mother's daughters and sisters. They use no manner of courtship, but only apply to the father or nearest relation, and if he consents, there needs no farther ceremony. They have as many wives as they please, who are employed in making hammocks, taking care of the garden, and planting roots. They live together in great harmony, there seeming to be no manner of jealousy among them. This being the case, there can be little temptation to adultery on the man's part. As for the women, they may lie with who they will before they are married, without the least blame. The men go to war, and employ themselves in hunting and fishing; they make wooden swords, bows, arrows, and ornaments, composed of feathers. When an Indian is dead, they bury him in about twelve hours, in a grave made round like a tun, having first wrapped him in his cotton hammock, placing him almost upright, with his bracelets and other trinkets. The women, when their husband is dead, make a terrible noise, which they repeat as often as they see their graves.

BRASS, or, as the French term it, **YELLOW-COPPER**, is a factitious metal composed of copper and lapis calaminaris.

The method of preparing it is thus: The lapis, having been calcined and ground fine as flour, is mixed with fine charcoal, and incorporated, by means of water, into a mass: this being done, about seven pounds of lapis calaminaris is put into a melting pot that will contain about a gallon, and over that about five pounds of copper; this pot is set down into a wind furnace, where it remains for eleven hours, in which time it is converted into brass. The metal then is cast, either into plates or lumps; forty-five pounds of crude lapis calaminaris will produce thirty pounds when calcined or burned. Sometimes brass-thruff is used instead of copper; but that is not always to be procured in quantities sufficient, it being no other than a collection of old brass. Pure brass is not malleable, unless when it is hot: for when it is cold it will break; and after it has been melted twice, it will no longer bear the hammer: but in order to render it capable of being wrought, they put seven pounds of lead to an hundred weight of brass, which renders it more soft and pliable.

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Brass may be cleansed, first, by rubbing it with a cloth dipped in equal quantities of aqua-fortis and common water; then with an oily cloth, and lastly with a dry one dipped in lapis calaminaris.

Brass is tinged of a gold colour, first, by burning, then dissolving it in aqua-fortis, and, lastly, reducing it to its metalline state. It may be whitened by heating it red-hot, and quenching it in water distilled from sal ammoniac and egg-shell. It is silvered, or coloured superficially white, by rubbing it with balls made of silver dissolved in aqua-fortis, with powder of white tartar, sufficient to absorb all the moisture thereof.

Corinthian BRASS which has been famous in antiquity, is a mixture of gold, silver, and copper. L. Mummius having sacked and burned the city of Corinth, 146 years before Christ, it is said this metal was formed from the immense quantities of gold, silver, and copper, wherewith that city abounded, thus melted and run together by the violence of the conflagration.

BRASS-COLOUR, one prepared by the braziers and colourmen to imitate brass. There are two sorts of it, the red brass, or bronze, and the yellow or gilt brass; the latter is made only of copper-filings, the smallest and brightest that can be found; with the former they mix some red ochre, finely pulverized; they are both used with varnish.

BRASSICA, **CABBAGE**, in botany. See **CABBAGE**.

BRAULS, Indian cloths with blue and white stripes. They are otherwise called turbans, because they serve to cover those ornaments of the head, particularly on the coast of Africa.

BRAWN, the flesh of a boar soufed or pickled; for which the boar should be old, because the older he is, the more horny will the brawn be.

The method of preparing brawn is thus: the boar being killed, it is the stitches only, without the legs, that are made brawn; the bones of which are to be taken out, and then the flesh sprinkled with salt, and laid in a tray, that the blood may drain off; then it is to be salted a little, and rolled up as hard as possible. The length of the collar of brawn should be as much as one side of the boar will bear; so that when rolled up, it will be nine or ten inches diameter.

The collar being thus rolled up, it is to be boiled in a copper, or large kettle, till it is so tender that you can run a straw through it; then set it by, till it is thorough

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ough cold, and put into the following pickle. To every gallon of water, put a handful or two of salt, and as much wheat bran: boil them together, then drain the bran as clear as you can from the liquor; and when the liquor is quite cold, put the brown into it.

BRAZIER, an artificer who makes and sells copper and brass vessels.

BRAZING, the soldering or joining two pieces of iron together, with thin plates of brass, melted between the pieces that are to be joined. If the work be very fine, as when two leaves of a broken saw are to be brazed together, they cover it with pulverized borax, melted with water, that it may incorporate with the brass powder, which is added to it: the piece is then exposed to the fire, without touching the coals, and heated till the brass is seen to run.

BRAZING is also the joining two pieces of iron together by heating them hot, the one upon the other, which is used for large pieces by farriers, &c.

BREACH, in fortification, a gap made in any part of the works of a town by the cannon or mines of the besiegers, in order to make an attack upon the place. A practical breach is that where men may mount, and make a lodgment, and ought to be fifteen or twenty-feet wide.

BREACH, in a legal sense, is where one breaks through the conditions of a bond or covenant, or an action upon which the breach must be assigned.

BREAD, *Panis*, a mass of dough kneaded and baked in an oven. We find bread sometimes made of rye, of oats, and of barley; but that prepared from wheat is by far the most wholesome. In several parts of Asia, Africa, and America, they make bread of maize, or Indian corn; and in some parts the Americans make bread of the cassava root.

BREADTH, in geometry, one of three dimensions of bodies, and which, multiplied into the length, produces a surface.

BREAKERS, the waves that break over rocks or shallows lying immediately under the surface of the water. If a ship is driven among breakers, it is almost impossible to save her from being wrecked, as every billow lifts her up and dashes her bottom with additional force upon the rocks or sands.

BREAKING-BULK, in naval affairs, beginning to unload the cargo.

BREAM, *Brama*, in ichthyology, a fish, of which there are two sorts, one

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found in the fresh, and the other in the salt water. The former is the cyprinus, and has all its fins black; and the latter the reddish sparus, having eleven parallel and gold-coloured lines on each side.

BREAMING, in naval affairs, the burning the grass, ooze, or shells, from off a ship's bottom, with furze or faggots. See **CAREEN** and **DOCK**.

BREAST, *Pectus*, in anatomy, the fore part of the thorax. See **THORAX**.

BREASTS, *Mamma*, in anatomy. See **MAMMÆ**.

BREAST-HOOKS, in naval architecture, strong pieces of crooked timber bolted across the stem, and fayed to the inside of a ship's bows, to fortify the forepart.

BREAST-PLATE, in antiquity, a piece of armour worn to defend the breast, originally made of hides, or hemp twisted; but afterwards made of brass, iron, or other metals, which were sometimes so exquisitely hardened, as to be proof against the greatest force.

* **BRECKNOCK**, or **BRECON**, a town, the capital of the county of Brecknockshire, with two markets, on Wednesdays and Saturdays, and four fairs, on May 4, July 5, September 10, and November 17, for leather, hops, cattle, and all sorts of commodities. It is seated at the confluence of the rivers Hondy and Usk. It is an ancient place, containing three churches, one of which is collegiate, and is seated at the west end of the town. The houses are well built. Here was formerly a stately castle, and a strong wall, through which there were three gates, that are all demolished. It is governed by two bailiffs, a recorder, fifteen aldermen, two chamberlains, a town-clerk, two constables, and two serjeants at mace, and sends one member to parliament. It is well inhabited. The markets are well supplied with cattle, corn, and provisions. It is thirty-four miles north-west-by-west of Monmouth, and one hundred sixty-three from London. Long. 3. 15. W. Lat. 52. 0. N.

* **BRECKNOCHSHIRE**, is bounded by Radnorshire on the north, Cardigan-shire and Caermarthenhire on the west, Herefordshire and Monmouthshire on the east, and by Glamorganhire and Monmouthshire on the south. It is thirty-five miles in length, thirty in breadth, and about an hundred in circumference. It is surrounded with hills, which render the air in the vallies pretty temperate. The soil on the hills is very stoney, but the streams

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streams descending from thence into the vallies render them fruitful both in corn and grass. The chief commodities here are corn, cattle, fish, and otter's fur, besides manufactures of cloth and stockings. The principal rivers are the *Urk*, the *Wye*, and the *Yrvon*. The chief towns are *Brecknock*, *Bealt*, and *Hay*.

BREAST-POUGH, a plough so fashioned that a man may shove it before him.

BREAST-WORK. See *PARAPET*.

BREECH of a great Gun, or Cannon, the end next the touch-hole.

BREECHING, in sea-gunners, a rope whose middle part being fastened to the breech or pomellion of a piece of ordnance, the two ends are passed through ring-bolts on each side of the carriage, and afterwards fastened to other ring-bolts in the ship's side. It is used to secure the cannon in time of engagement, and prevent them from recoiling too much. Pomellion is the same thing amongst seamen, that cascabel is with engineers, the hindmost knob on the breech of a cannon.

BREEZE, a shifting wind that blows from sea or land for some certain hours in the day or night; common in Africa, and some parts of the East and West Indies. The sea breeze is only sensible near the coasts; it commonly rises in the morning, about nine, proceeding slowly in a fine small black curl on the water, towards the shore; it increases gradually till twelve, and dies about five. Upon its ceasing, the land breeze commences, which increases till twelve at night, and is succeeded in the morning by the sea-breeze again.

BRENT-GOOSE, a species of goose with a black neck and a white collar round; usually confounded with the barnacle, tho' in reality a distinct species.

BREŢT, or **BREAST**, in architecture, a term sometimes used for the member of a column, more usually called *torus*. See *Torus*.

* **BREST**, a maritime town in Lower Brittany, in France, is seated on the declivity of a hill on the side of its port, which is the largest in the kingdom, and will hold five hundred ships at a time. There is an arsenal with sea-stores, which was placed there on account of its nearness to the woods, mines of iron, and other things proper for the building of ships. It was entirely consumed by fire, in 1744, which was an irreparable loss to France. The entrance into the port is guarded by a strong castle, seated on a rock, which

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cannot be attempted on the sea-side, because it is craggy, and defended on the land side by a large ditch and other fortifications.

The streets of *Brest* are very narrow. A great quay surrounds this side of the port, which is above a mile in length, and two hundred paces broad; there are magazines on the quay, full of all foreign merchandizes. On the other side of the port, the fine church of *Notre Dame* is seated; and in a suburb, which is as big as half the city, there is a strong tower, opposite the castle, at the entrance of the port; there is also a great quay on this side, bordered with large magazines, partly within the rock, which has been cut away to enlarge the place; these are extended almost as far as the bottom of the harbour, where there are two docks, very commodious for the building of large ships; the shops and houses of the workmen are all round them. The English attempted to take possession of this harbour in 1694, but were disappointed. It is thirty miles south-west of *Morlaix*, and three hundred and twenty-three west of *Paris*. Lon. 4. 26. W. Lat. 48. 23. N.

* **BRETON (CAPE)** an island in North America, the chief place of which is *Louisburg*. It is separated from *Nova Scotia* by the narrow streight of *Canso*. It is one hundred and seventeen miles long, and seventy-five broad, and is full of lakes; it is a barren place, being covered with snow in winter, and subject to great fogs in summer; however, it is of importance, as it in some measure commands the navigation of the river *St. Lawrence*, and is useful to those who go to fish for cod; it has several good harbours, and the fishery on the coast is very good. It was taken from the French in 1743, and restored to them again, by the treaty of *Aix-la-Chapelle*, in 1748; and it was again taken by the English, on July 29, 1758, when the whole garrison, consisting of five thousand six hundred men, were made prisoners of war; there were eleven men of war in the harbour, which were either taken, sunk, or destroyed. It is seated between forty-five and forty-seven degrees of latitude.

BREVE, in law, any writ directed to the chancellor, judges, sheriffs, or other officers, whereby a person is summoned, or attached, to answer in the king's courts, &c.

BREVE PERQUIRERE, the purchasing of a writ or licence for trial in the

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the king's courts : whence comes the present usage of paying six shillings and eight-pence fine to the king in suit, for money due on bond, where the debt is forty pounds, and of ten shillings where it is a hundred pounds, &c.

BREVE DE RECTO, a writ of right, or licence, for a person ejected to sue for the possession of the estate detained from him.

BREVET, in the French customs, denotes the grant of some favour or donation from the king, in which sense it partly answers to our warrant, and partly to letters patent.

BREVIARY, a daily office in the Romish Church. It is composed of matins, lauds, first, third, sixth, and ninth vespers, and the compline or post communio. The breviary of Rome is general, and may be used in all places ; but on the model of this, various others have been built, appropriated to each diocese, and each order religious.

The institution of the breviary is not very ancient : there have been inserted in it the lives of the saints, full of ridiculous and ill attested stories, which gave occasion to several reformatations of it, by several councils, particularly those of Trent and Cologne, by several popes, particularly Pius V. Clement VIII. and Urban VIII. also by several cardinals and bishops, each lopping off some extravagancies, and bringing it nearer to the simplicity of the primitive offices.

BREVIUS A ROTULIS LIBERANDIS, a writ to a sheriff, to deliver to his successor, the county, with the appurtenances, and the rolls, writs, and other things to his office belonging.

BREVIERE, a small kind of type, or letter, on which this dictionary is printed.

BREVIS, in anatomy, an appellation given to several muscles, on account of their shortness.

BREW-HOUSE, a building adapted to the brewing, &c. of malt-liquors.

In order to erect a large and public brew-house to the best advantage, several circumstances should be carefully observed. 1. That three sides in four of the upper-part, or second floor, be built with wooden batons about three inches broad, and two thick, that a sufficient quantity of air may be admitted to the backs or coolers. 2. That the coppers be erected of a proper height above the mashing-stage, that the hot-water may be conveyed by means of cocks into the mashing-tuns,

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and the worts into the coolers. 3. That the fire-places of the coppers be very near each other, that one stoker, or person who looks after the fire, may attend all.

4. That the yard for coals be as near as possible to the fire-places of the copper.

5. That the malt be ground near the mashing-tuns, and the mill erected high enough that the malt may be conveyed from the mill immediately into the mashing-tuns, by means of a square wooden spout or gutter.

6. That the upper backs be not erected above thirty-three feet above the reservoir of water, that being the greatest height water can be raised by means of a common single pump. 7. That the pumps which raise the water, or liquor, as the brewers call it, out of the reservoir into the water backs, and also those which raise the worts out of the jack-back into the coppers, be placed so that they may be worked by the horse-mill which grinds the malt.

BREWING, the operation of preparing ale or beer from malt ; the usual process is as follows : the ingredients being ready, the water must be made to boil very speedily, and while boiling with the greatest violence the fire must be immediately damped, or put out, when the height of the steam is over, the water is put into the mashing-tub to wet the malt ; then so much being poured out as to make it of a consistence stiff enough to be rowed up, let it stand thus a quarter of an hour, after which another quantity of the water is added, and rowed up as before ; at last the full quantity of water is poured upon it, and that in proportion as the liquor is intended to be strong or weak : this part of the operation is called mashing. Afterwards the whole may be left to stand two or three hours, more or less, according to the strength of the wort, or the difference of the weather ; then let it run into the receiver, and mash again for a second wort in the same manner as for the first, only the water must be cooler, and must not stand above half the time.

The two worts being mixed together, the quantity of hops that is designed may be added thereto, and the liquor put into the copper, which being closely covered up, let it boil gently for the space of an hour or two ; then let the liquor into the receiver, and the hops strained from it into the coolers.

When cool, the yeast is applied ; which done, it is left to work or ferment, till it be fit to tun up.

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For small beer there must be a third mashing; the water must be near cold, and to stand not above three quarters of an hour; to be hopped and boiled at discretion.

For double ale, or beer, the two liquors coming from the two first mashings must be used as liquor for a third mashing of fresh malt. For fine ale, the liquor thus brewed is farther prepared with molasses: instead of yeast, or baum, some use Castile soap, others flour and eggs, others an essential oil of barley, others a quintessence of malt, others of wine, and others the sal panaristius.

BREYNIA, in botany, a genus of plants, whose corolla consists of four oval patent petals, and is somewhat larger than the cup: the fruit is a very long, fleshy, clavated, soft pod, formed of two valves, and containing only one cell: the seeds are numerous, kidney-shaped, fleshy, and arranged longitudinally in the pod.

BRIAR, or **BRIAR BUSH**, the wild rose. See **ROSE**.

* **BRIAREUS**, in fabulous history, the son of Titan, Æther, or Cœlus, and Terra, a giant, who, according to Homer, was called Ægeon by men and Briareus by the Gods. He is represented as having fifty heads, breathing fire, and an hundred hands. He defended Jupiter, when Pallas, Juno, and Neptune, with the rest of the Gods, attempted to dethrone him; but afterwards conspiring with the rest of his gigantic brethren, against Jupiter, that God slung him down, and then threw mount Ætna upon him, which, as often as he moves, casts forth fire.

BRIBERY, in common law, is the receiving a gift or reward of any person who has business before him, for his doing his office, or by colour of his office, except the king only, unless it be meat and drink.

BRIBERY is punishable by fine and imprisonment, and the loss of office; and in a judge it is deemed so heinous, that anciently it was punished as treason. Judges servants are punishable for receiving bribes: and if any judge refuse a bribe offered him, the person that offered it may be punished. Officers of the customs taking any bribe, whereby the crown may be defrauded, forfeit 100*l*. Candidates for a seat in parliament, that bribe electors, after the test of writs of election, &c. are disabled to serve in parliament; as are likewise such electors, to

vote, and to hold any office, and shall forfeit 100*l*. &c.

BRICK, a fat reddish earth, formed into long squares, four inches broad, and eight or nine long, by means of a wooden mould, and then baked or burnt in a kiln, to serve the purposes of building.

Bricks are of great antiquity, as appears by the sacred writings, the tower and walls of Babylon being built with them. In the East they baked their bricks in the sun; the Romans used them unburnt, only leaving them to dry for four or five years in the air.

Of the Matter wherewith BRICKS are made. Pliny says, that to make good bricks they must not consist of any earth that is full of sand or gravel, nor of such as is gritty or stony; but of a greyish matl, or whitish chalky clay, or at least of a reddish earth: he also adds, that the best season for making bricks is the spring, because, if made in summer, they will be subject to crack, and be full of chinks. He directs, that the loam of which bricks are made, be well steeped and wrought with water.

About London they chiefly burn in clamps, built of the bricks themselves, after the manner of arches in kilns, with a vacancy between each brick, for the fire to play through; but with this difference, that instead of arching, they span it over by making the bricks project one over another, on both sides of the place, for the wood and coals to lie in till they meet, and are bounded by the bricks at the top, which close all up. The place for the fuel is carried up straight on both sides, till about three feet high; then they almost fill it up with wood, and over that lay a covering of sea-coal, and then overspan the arch; but they firew sea-coal also over the clamp betwixt all the rows of bricks: lastly, they kindle the wood which gives fire to the coal, and when all is burnt, they then conclude the bricks are sufficiently burnt.

BRICK-MAKING, the art of making and burning bricks.

BRICKLAYER, one who lays bricks in the building of walls, houses, &c.

Tilers and bricklayers were incorporated 10 Eliz. under the name of master and wardens of the society of freemen of the mystery and art of tilers and bricklayers.

BRIDGE, an edifice either of stone or timber, consisting of one or more arches erected over a river, or the like, for the conveniency of passing over.

The parts of a bridge are the piers, or legs, pile; the arches; the pavement, or way over for cattle and carriages; the foot-banks on each side for foot passengers; the rail or parapet which incloses the whole; and the buttments, or ends of the bridge on the banks.

Bridges are a sort of edifices very difficult to execute, on account of the inconvenience of laying foundations, and walling under water.

The conditions required in them are, that they be well-designed, commodious, durable, and suitably decorated. The piers of stone bridges are to be equal in number, that there may be one arch in the middle, where commonly the current is strongest: their thickness is not to be less than a sixth part of the span of the arch, nor more than a fourth. They are commonly guarded in front with an angular sterling, or spur, to break the force of the current, though this defence is sometimes also turned semicircularly: in the ancient bridges it is always a right angle, which has the advantage of being stronger and more durable than acute ones. The strongest arches are those whose sweep is a complete semicircle; as for the rails, the height, ornament and the like, they are left to discretion.

In the bridges of Avignon, St. Esprit, and Lyons, there is this remarkable, that they are not straight, especially the two former, but bent, having an angle, whose convexity is turned towards the stream to break the force thereof: the bridge of St. Esprit, Dr. Robinson observes, is bowed in many places, making unequal angles, especially in those parts where the stream is strongest.

The famous bridge of Venice called the Rialto, consists but of a single arch, and that a flat or low one, passing for a master-piece of art, being built in 1591, after the design of Michael Angelo: the span of the arch is ninety-eight feet and a half, and its height above the water only twenty-three feet. Pons also mentions a bridge of a single arch in the city of Munster in Bothnia, much bolder than that of the Rialto at Venice. But these are nothing to a bridge in China, built from one mountain to another, consisting of one single arch, 400 cubits long, and 300 cubits high, whence it is called the flying bridge: a figure of it is given in the Philosophical Transactions. Kircher also speaks of a bridge in the same country 360 perches long without any arch, supported only by 300 pillars.

Among all the bridges of the ancients, that built by Trajan over the Danube is allowed to be the grandest. It was composed of twenty arches of an hundred and fifty feet in height, and their opening from one pile, or pier, to another was one hundred and sixty feet. The piers of this fine bridge are still to be seen in the middle of the Danube. It was erected between Servia and Moldavia, a little above Nicopolis.

Wooden BRIDGES, called by the Latins, *pontes publici*, consist of beams and joists, sustained by punchions, well cramped and bound together.

M. Complet gives the structure of a portable bridge, 200 feet long, easily taken asunder and put together again, and which forty men may carry. Vide Du Hamel, *Hist. Reg. Acad. Scienc.* l. 3. § 5. c. 4. p. 273. Frezier speaks of a wonderful kind of bridge at Apurima in Lima, made of ropes, formed of the bark of a tree. Vid. Frez. *Voyage, South Sea*, p. 184.

Dr. Wallis gives the design of a timber-bridge, seventy-feet long, without any pillars, which may be useful in some places where pillars cannot be conveniently erected. *Philos. Trans.* No. 163. p. 714.

Dr. Plot assures us, that there was formerly a large bridge over the castle-ditch at Turbury in Staffordshire, made of pieces of timber, none much above a yard long, and yet not supported underneath, either with pillars or arch-work, or any sort of prop whatever. Vide Plot, *Nat. Hist. Stafford.* c. 9. § 88. p. 383.

Draw-BRIDGE, *Pons Subduciarius*, one made fast only at one end with hinges, so that the other end may be lifted up; in which case the bridge stands upright, to prevent the passage of either ditch or moat.

There are others made to draw back to hinder the passage, and to thrust over again to afford a passage; and others, which open in the middle, half of which turns away to one side, and the other half to the other; being joined again at pleasure: but they have this inconvenience, that one half of them remains on the enemy's side.

Flying-BRIDGE, *Pons volans*, or *Pons ductarius*, an appellation given to a bridge made of pontoons, leather boats, hollow beams, tanks, or the like, laid on a river, and covered with planks, for the passage of an army.

Flying-BRIDGE, *Pons volans*, more particularly denotes a bridge composed of one or two boats joined together by a sort

of flooring, and surrounded with a rail, or balustrade; having also one or more masts, to which is fastened a cable, supported, at proper distances, by boats, and extended to an anchor, to which the other end is fastened, in the middle of the water: by which contrivance, the bridge becomes moveable, like a pendulum, from one side of the river to the other, without any other help than the rudder. Such bridges sometimes also consist of two stories, for the quicker passage of a great number of men, or that both infantry and cavalry may pass at the same time.

Flying, or Floating-BRIDGE, is ordinarily made of two small bridges, laid one over the other, in such manner, as that the uppermost stretches and runs out, by the help of certain cords running through pulleys placed along the sides of the under-bridge, which push it forwards till the end of it joins the place it is designed to be fixt on. When these two bridges are stretched out to their full length, so that the two middle ends meet, they are not to be above four or five fathoms long; because, if longer, they will break.

BRIDGE of Communication, a bridge made over a river, by which two armies, or forts, separated by the river, have a free communication with each other.

BRIDGES of Boats, are either made of copper or wooden boats, fastened with stakes, or anchors, and laid over with planks. One of the most notable exploits of Julius Cæsar was the expeditious making a bridge of boats over the Rhine.

There are five bridges of boats at Beaucaire and Rouen, which rise and fall with the water, and one at Seville is said to exceed them both.

The bridge of boats at Rouen, built in lieu of the stately stone bridge erected there by the Romans, is represented by a modern writer as the wonder of the present age. It always floats, and rises and falls with the tide, or as the land-waters fill the river. It is near 300 yards long, and is paved with stone, just as the streets are; carriages with the greatest burdens go over it with ease, and men and horses with safety, though there are no rails on either hand. The boats are very firm, and well moored with strong chains, and the whole well looked after, and constantly repaired, though now very old.

BRIDGE, in gunnery, the two pieces of timber which go between the two transoms of a gun-carriage, on which the bed rests.

BRIDGE, in music, a term for that part of stringed instruments over which the strings are stretched.

* *BRIDGE-TOWN*, the capital of the island of Barbadoes, the finest in all the Caribbee islands. It stands in the innermost part of Carlisle bay, which is large enough to contain five hundred ships. It is seated at the entrance of St. George's valley, which runs several miles into the country. The houses are about one thousand two hundred, with glazed windows, and the streets are broad. The wharfs and quays are very neat and convenient, and there are several forts, as well as a magazine, built of stone, where the stores of the island are kept. The church is large, and has a noble organ, a good ring of bells, and a clock. There are large taverns and eating-houses, with a post-house, on account of a monthly packet boat, settled between this place and England. The militia of this town and St. Michael's precinct, consist of one thousand two hundred men, called the royal regiment of foot guards. It is the seat of the governor, council, assembly, and court of chancery. But the governor's house is about a mile north-east of the town. The town is very rich, the inhabitants polite, and there are plenty of ingenious artificers of every kind. Long, 61. ° W. Lat. 13. ° N.

* *BRIDGNORTH*, a town in Shropshire, it has a market on Saturdays, and four fairs; on Thursday before Shrove Tuesday, for horned cattle, &c. on June 30 for the same, and great quantities of sheep's wool; on August the 2d for the same, and lamb's wool; and on October 29 for horned cattle, horses, sheep, salt, butter and cheese. It is seated on the Severn, which divides it; but it is united by a handsome stone bridge, and these are called the Upper and Lower towns. Robert de Belizma, son of Robert de Montgomery, built the castle here, and maintained it against king Henry I. by which means it was forfeited to the crown, and remained so till the reign of Richard III, who gave it to John Sutton, lord Dudley.

This town has undergone several sieges, and in the civil war suffered very much, the whole town being almost destroyed by fire, when Sir Lewis Kirke defended the citadel for king Charles. There are now no other remains of the castle than a small part of one of the towers, and a place yet called the castle, within the walls of the old one; within which, stands one of the

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churches, dedicated to St. Mary Magdalen, which was made a free chapel, and exempted from episcopal jurisdiction. The other church is at the north end of the town, on the highest part of the hill, near to whose church-yard stood a college, which was destroyed by fire in the civil wars, together with the church just mentioned; which has been since rebuilt by the inhabitants. On the west bank of the river are the remains of an ancient and magnificent convent. It is governed by two bailiffs who are elected yearly, out of the twenty-four aldermen, by a jury of fourteen, twelve of whom must agree in their choice. It has also forty-eight common council men, and a recorder, town-clerk, and sub-officers. It is fourteen miles north-west of Kidderminster, and one hundred and forty north-west of London.

BRIDGWATER, a borough town in Somersetshire, governed by a mayor, a recorder, two bailiffs, two aldermen, and twenty-four common council men. It sends two members to parliament; and has two markets, on Thursdays and Saturdays; with four fairs, on the second Thursday in Lent, June 24, September 21, and December 28, for cattle and all sorts of goods. It has a handsome church, and a bridge over the river Parret, near which ships of an hundred tons burthen may ride. It is twenty-four miles west-south-west of Wells, and one hundred and forty-three west-by-south of London. Long. 2. 54. W. Lat. 51. 15. N.

BRIDLE, in the manege, a contrivance made of thongs of leather, and pieces of iron, to keep a horse in subjection and obedience.

The several parts of a bridle are, the bit, or snaffle; the head-stall, or leathers from the top of the head to the rings of the bit; the fillet, over the forehead and under the fore-top; the throat-band, which buttons from the head-band under the throat; the reins, or long thongs of leather, that come from the rings of the bit, and, being cast over the horse's head, the rider holds them in his hand; the nose-band, going through loops at the back of the head-stall, and buckled under the cheeks; the trench; the cavesean; the martingal; and the chaff-halter.

BRIDLE-Hand is the horsefman's left-hand, the right-hand being the spear or sword-hand.

BRIDLE, *Frænum*, in anatomy. See *FRÆNUM*.

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BRIDLES, in naval affairs, the upper part of the moorings, provided to ride ships or vessels of war in the king's harbours: they consist of one or more pieces of cable, whose upper-ends are only of a sufficient length to be drawn into the fore-part of the ship, and fastened; the lower parts are generally chains linked to anchors, which are sunk for that purpose, and always remain in the bottom.

BRIDPORT, a town in Dorsetshire, that has a market on Saturdays, and three fairs, on April 5, for bullocks and sheep, and on April 10, for pedlars ware and cattle. It is between two rivers. It is a corporation, governed by two bailiffs, thirteen other burgesses, a recorder, town-clerk, and two serjeants at mace. The two bailiffs, and those for the preceding year, and recorder are sole justices of the peace within the borough. It sends two members, who are chosen by the inhabitants who are housekeepers. It is celebrated for making of ropes and cables for shipping. It is fourteen miles west of Dorchester, and one hundred and thirty-nine west-by-south of London. Long. 3. 0. W. Lat. 50. 40. N.

BRIEF, in common law, a writ whereby a man is summoned or attached to answer any action.

Is called brief because it is couched in a few words, without any preamble.

BRIEF, a writing issued out of any of the king's courts of record at Westminster, whereby some thing is commanded to be done, in order to justice, or the execution of the king's command.

BRIEF is also taken for a letter-patent, granting a licence to a subject to make a collection for any public or private loss, as briefs for loss by fire, or building churches, to be read by ministers in churches, &c.

BRIEF, an abridgement of a client's case, wrote out for the instruction of council, on a trial at law.

Apostolical BRIEFS, letters which the pope dispatches to princes or other magistrates, relating to any public affair.

BRIG, or **BRIGANTINE**, a small merchant ship of two masts, whose main sail, instead of hanging across the line of her length to a parallel yard, is spread fore and aft.

The term brigantine is variously applied by seamen of different countries in Europe to some particular species of vessels of their own marine.

BRIGADE, a military term, a party or division of a body of soldiers, whether

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ther horse or foot, under the command of a brigadier.

An army is divided into brigades of foot: a brigade of horse is a body of eight or ten squadrons; a brigade of foot consists of four, five, or six battalions.

BRIGADE-MAJOR, an officer appointed by the brigadier, to assist him in the management and ordering of his brigade.

BRIGADIER, the general officer who has the command of a brigade. The eldest colonels are generally advanced to this post. He that is upon duty is brigadier of the day. They march at the head of their own brigades, and are allowed a serjeant and ten men of their own brigade for their guard.

BRILLIANT, in a general sense, something that has a lucid and bright appearance.

BRILLIANT Diamonds. See **Diamond**.

BRIMSTONE, in natural history. See **Sulphur**.

BRINE, water replete with saline particles; or pickle. See the article **SALT**.

* **BRISTOL**, a city and sea-port town, which stands partly in Gloucestershire, and partly in Somersetshire, though independent on both, it being a county of itself. It is generally esteemed the second city in England, for trade, wealth, and number of inhabitants, and is seated on the rivers Avon and Frome. The former runs through the city, and has a large stone bridge built over it, consisting of four arches, with houses built on it on each side. The quay or key is on the Frome, over which there is a draw-bridge for the conveniency of ships coming up to load and unload, which is very convenient. A little below this the Frome falls into the Avon. The streets are numerous, those in the city are built very close, and those on the out parts are spacious. The goods are carried upon sledges which renders the streets very slippery. The College Green, which is separated from the city, is a very agreeable elegant place, and being on high ground, overlooks the city; in it there is a stately high cross, which is a fine Gothic structure, with the effigies of several kings of England all round it. The cathedral is seated here, which is a fine Gothic structure, besides eighteen parish churches. There are likewise several meeting-houses for Protestant dissenters. They have lately had a fine exchange built, in the room of

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the tholfel, where the merchants used to meet. Queen's square is a very handsome spacious place, and has the statue of King William on horseback in the middle. Besides those, there are hospitals, charity schools, &c. It is governed by a mayor, twelve aldermen, two sheriffs, and twenty-two common council-men, and sends two members to parliament.

The hot well, a little distance from the city, is a place of great resort. In St. Vincent's rock, near the river Avon, transparent stones are found, harder than chrystal, and softer than diamonds, well known by the name of Bristol stones. There are hackney coaches to be had at Bristol on any occasion, but they do not stand in the streets to be hired, as in London. They have a great fair on St. James's day, which is frequented by tradesmen from all parts of the kingdom. They have also another on January 25, for most sort of goods. It has a market on Wednesday, Friday, and Saturday. The number of houses are reckoned at nine thousand, and the inhabitants at seventy thousand. It is a bishop's see, created since the dissolution of the monasteries. It is fifty-one miles south of Hereford, sixty-eight west-by-south of Oxford, and one hundred and seventeen west of London. Long. 2. 40. W. Lat. 51. 27. N.

BRISTOL-WATER. These waters are the fourth in degree amongst the waters which are esteemed warm. The waters of Bath are the first, Buxton a second, and Matlock the third. Bath waters are beneficial, when the secretions from the blood are diminished; Bristol when too much increased; both attenuates powerfully; Bristol incrassates: Bath is spirituous, and helps defects; Bristol is more cooling, and suppresses plenitude, with its consequences, inflammations and hæmorrhages. If we may judge of the contents of Bristol waters, from their effects, which are exceedingly detergent and healing, they partake chiefly of chalk, lapis calcarius, and calaminaris, the virtues of which are too dry to cleanse; they fill ulcers with flesh, and cicatrize them.

But whatever the substances are that impregnate them, it is plain they are very subtil, and that there is but little of a terrestrial part in them, from their specific lightness above other waters: yet when we consider how agreeable to sight, smell, and taste; how clear, pure, and soft, they are; their gentle degree of heat,

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so adapted to sundry diseases, it must be concluded that these waters imbibe some salutary particles in their passage through the earth, and from the many cures yearly wrought by them, that they have an undoubted title to a place in the first class of medicinal waters.

The diseases in which Bristol waters are properly prescribed, are internal hæmorrhages, and inflammations, blood spitting, dysentery, and immoderate flux of the menses, purulent ulcers of the viscera: hence is consumptions, the dropsy, scurvy with heat, stone, gravel, stranguary; the habitual gout, scorbutic rheumatism, diabetes, slow fevers, atrophy, venereal disease, cancer, gleet in both sexes, king's evil, &c. in all these disorders, Bath waters are not only improper, but hurtful. In short, Bath water seems to be adapted to the maladies of the stomach, guts, and nerves; Bristol, to those of the lungs, kidneys, and bladder: again, Bath waters are at variance with a milk course; and the Bristol can never be judiciously directed, but when they may be joined with reason and success. The Bristol-waters are taken medicinally only during the hot months, as from April to September.

* **BRITAIN (GREAT.)** The length of Great Britain, from Dunnet Head in Scotland, to Dartmouth in England, is five hundred and seventy measured miles, or four hundred and ninety geographical miles; from Harwich in England, to St. David's in Wales, is three hundred and six measured, or two hundred and sixty-six geographical miles, supposing they are computed in a direct line. But if we go as strait as we can along the road, it is three hundred and ninety-six measured miles, from New Haven in Suffolk, to Berwick upon Tweed, which is the length of England only; and from Harwich in Essex, to the Land's End in Cornwall, three hundred and seventy-one. But if it be measured directly across, from Malden in Essex, to St. David's in Wales, it is not much above three hundred miles. See **ENGLAND, SCOTLAND, WALES, &c.**

BRITTLENESS, that quality of bodies which subjects them to be easily broken.

BRIZE-VENTS, shelters used by gardeners who have not walls on the north-side, to keep the cold winds from damaging their beds of melons.

BROACHING-TO, in navigation, the act of bringing a ship's side to the wind, when she had been steering before it: this

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is a most dangerous incident, and is often apt to prove fatal, as a ship may be overturned at the time of broaching to, since she can always carry more sail before the wind than when bearing her side to it; it is occasioned only by the negligence or incapacity of the helmsman.

BROAD, an appellation given to things whose breadth bears a considerable proportion to the length.

BROADSIDE, in naval affairs, the whole discharge of the artillery on one side of a ship upon an enemy.

BROCADE, or **BROCADO**, a stuff of gold, silver, or silk raised and enriched with flowers, foliages, and other ornaments, according to the fancy of the merchants or manufacturers.

BROCCOLI, in gardening, the name of a well known plant, of which there are three sorts; namely the common broccoli, the green broccoli, and the Siberian broccoli, which is the curled cole-wort, by some called Scotch kale. All these are for winter use; but the last is most esteemed. The two former are sown about the middle of April, and are fit for transplanting in about two months after. When this is done, the plants of either of these sorts should be set a foot asunder in rows two feet distant from each other. They should not be eaten before the frost has rendered them tender; for till then they are tough and bitter. The Siberian broccoli, which is extremely hardy, never injured by cold, and always sweeter in severe winters, than in mild ones, need not be sown till the beginning of July, and when its plants are strong enough for removing, that is to say, when they have about six or eight leaves, they should likewise be set in rows. The distance of a foot and a half, or perhaps rather two feet again, between the rows, may be sufficient here. These will be fit for use soon after Christmas, and continue good till April.

The Roman or purple broccoli, the Naples or white broccoli, and the brown or black broccoli, are the sorts cultivated in the kitchen-garden. The former of these is the best flavoured, and continues longest in season; for which reason it is the most esteemed. The white broccoli taste so like the caulidower, that it is not always easy to distinguish them. The brown or black sort is the least delicate; but it is the hardest, and grows to the largest size.

For a second crop to supply the table after the first is gone, Mr. Miller advises

vises the sowing of broccoli again in the beginning of July: but Mr. Switzer thinks it wrong to sow this plant even so late as Midsummer; "because," says he, its stems "will not be strong enough, before the "winter to produce that number of sprouts "which otherwise they would." He therefore prefers portioning out the plants into three parts, and cutting their heads off entirely within a foot and half, or two feet of the ground; beginning to do this to one parcel about a fortnight before Michaelmas, to the next about a month after, and to the last about a fortnight or three weeks before Christmas; by which means a continued succession of sprouts will ensue from the sides of their remaining stems. Mr. Miller's method here will produce the largest heads, and Mr. Switzer's the greatest number of small ones.

The seeds of broccoli, are sowed in the same manner as those of the common cabbage; or if there be any difference, it is in regard to the white broccoli, of which it is best to reserve a few of the largest heads of the first crop, and let them run up to seed, carefully stripping off all the under shoots, so as to leave only the main stem. *Mills's Husbandry.*

BROKEN-BACKED, amongst seamen, a ship is said to be so, when either by age or some great strain she is so weakened in the keel and midship frame as to droop at both ends. See **KEEL**.

BROKER, a name given to persons of several and very different professions, the chief of which are exchange-brokers, stock-brokers, pawn-brokers, and brokers, simply so called, who sell household furniture, and second-hand apparel.

BRONCHIA, in anatomy, the ramifications of the trachea.

BRONCHIAL ARTERY, a vessel allotted to the nutrition of the lungs. It rises sometimes single, sometimes double, sometimes triple, from the aorta and intercostals, and adheres every where firmly to the bronchia.

BRONCHIAL-VEIN arises either from the intercostals, or from the vena azygos; accompanies the artery, and divides into the same number of branches with it. As the artery brings blood to the bronchia for the nutrition thereof, and of the vessels of the lungs, so the vein carries off the blood again to the cava, where it soon terminates.

BRONCHOCELE, in surgery, a tumour arising in the anterior part of the neck, from the resisting status of air,

some humour or other violence, as straining in labour, lifting of weights, &c.

This disorder with us, is frequently called a Derby-neck, on account of the inhabitants of that county being much subject to it; when once it becomes inveterate, it is very difficult, if ever curable, by medicines; but may be dispersed, if it is recent. A leaden collar, mixed with mercury, prevents it from growing bigger, if it does not entirely disperse it.

BRONCHOTOMY, in surgery, an incision made in the aspera arteria, or wind-pipe, which is necessary in many cases, and especially in a violent quincy, to prevent suffocation from the great inflammation or tumour of the part. It is also called tracheotomy.

There are several methods, of performing this operation; but that which exceeds the rest, as being most easy and expeditious, and occasioning the least wound and pain to the patient, is by an instrument consisting of a small tube, in which is contained a triangular needle called a trochar. If a drowned person has but just expired, or not continued long under water, the most certain and expeditious way of recovering him, will be by opening the trachea with such instrument as is nearest at hand, and afterwards to inflate or blow into his lungs either with the naked mouth, or with a tube.

***BRONTEUS**; in heathen mythology, one of the names which the Greeks gave to Jupiter, which signifies thunder, whence the Latins called him thundering Jupiter. Some have also given the same name to Bacchus, on account of the noise and mischief which often attends drunkenness.

BRONTES, in fabulous history, one of the Cyclops, who laboured at Vulcan's forge, and was thus named from his forging Jupiter's thunderbolts.

BRONTIA, *Thunder Stones*, in natural history, the same with the belemanites. See **BELEMANITES**.

BRONZE, a compound metal, consisting of two thirds copper, and one third of brass.

BRONZING, the act of colouring by metalline powders, plaster or other bolls and figures, in order to make them appear as if cast of bronze, copper, or other metals.

This is sometimes done by means of cement; and sometimes without, in the instance of plaster figures; but the bronzing is more durable and secure when a cement is used.

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The gold powder, and the aurum mosaicum, are frequently employed for this purpose; but the proper bronzing ought to be of a deeper and redder colour, more resembling copper; which effect may be produced by grinding a very small quantity of red lead with these powders; or the proper powder of copper may be used.

Where the appearance of brass is desired, the gold powders, or the aurum mosaicum, may be mixed with a little of the powder called argentum musivum.

Where no cement is used in bronzing, the powder must be rubbed on the subject intended to be bronzed, by means of a piece of soft leather, or fine linen rag till the whole surface be coloured.

The old method of using a cement in bronzing was to mix the powders with strong gum water, or isinglass size; and then with a brush, or pencil, to lay them on the subject; but the artists at present use the japanners gold size; and proceed in all respects in the same manner as in gilding with the powders in other cases. See GILDING.

The fictitious silver powder called argentum musivum, may be applied in the same manner as bronze, by those whose caprice disposes them to silver figures or busts.

* **BROOK-LIME**, in botany, the English name of the water anagallis. See ANAGALLIS.

BROOM, *Genista*, in botany. See GENISTA. Many gather the yellow buds of this plant, and pickle them with salt and vinegar, in the same manner as capers, from which they are not then to be distinguished; the flowers are most in use, and are accounted splenetic, nephritic, and hepatic.

Broom is extremely pernicious to arable and pasture-lands; and therefore ought by all means, to be rooted up, which is the only method of killing it. On barren grounds, indeed, it is a good improvement; for besides its use as fuel, it makes an excellent and lasting thatch, if well laid on.

Butcher's **BROOM**, the English name of a genus of plants, called by botanists ruscus.

Spanish **BROOM**, in botany, the English name of the spartium.

BROOM-LIME, in botany, the English name of the veronica.

BROOM-RAPE, the orobanche of botanists.

BROW, or **EYE-BROW**, the hairy arch extended over the orbit of each eye.

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BROW-ANTLER, among sportsmen, that branch of a deer's horn next his head.

BROW-POST, among builders, the beam that goes across the building.

BROWN, among painters, dyers, &c. a dusky colour, with a reddish cast. There are a great variety of degrees of this colour, distinguished by different appellations. The principal brown colours among painters are Spanish brown, brown pink, bistre, brown okre, umbre, asphaltum, and Spanish juice, or the extract of liquorice. See each under its proper article. But it must be remembered, that a brown colour of any tint desired may be procured by a judicious mixture of red, blue, and yellow.

* **BRUNSWICK**, a city of Germany, in the circle of Lower Saxony, and capital of the duchy of the same name. It is composed of five towns, the Old Town, the New Town, the Hagen or Burg, the Old Wiek, and the Sac. There are several churches, one of which is an ancient Gothic building. Brunswick is a fortified place, and would require a numerous army to besiege, and not a few men to defend it. It is of a square form, divided in the middle by the river Ocker, and is about two miles in circumference. The walls are lofty, and the fortifications good. On the ramparts is a mortar-piece of brass, ten feet six inches long, and nine feet two inches in diameter, weighing one thousand eight hundred quintals, and has ninety-three quintals of iron in the carriages. It will carry a ball of seven hundred and thirty pounds weight to the distance of thirty-three thousand paces, and throw a bomb of a thousand weight, but then it requires fifty-two pounds of gun-powder. This city is the residence of the duke of Brunswick Wolfenbuttle. He has theatrical and musical entertainments, though his revenues are not very large, and has five regiments to keep garrison. The inhabitants of this city and parts about it carry on a considerable trade with Bohemia, and the country abounds with very good hops, as also with turneps, with the seeds of which they make oil. The religion here is the Lutheran, which they are very strict in. It is fifty-five miles west of Magdeburgh, thirty east of Hanover, and eighty-eight west-by-south of Brandenburg. Longitude 10. 28. E. Lat. 52. 15. N.

* **BRUSSELS**, the capital of Brabant, in the Austrian Netherlands, and the seat of the Austrian governor, is seated on the small river Senne, which runs through it. It is a rich and handsome city; and among

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the public structures, the ducal palace, where the governor resides, the town-house, and the arsenal, are most superb; and no city in Europe, except Naples and Genoa, makes a finer appearance at a distance; but, like them, when in the town, it is all up and down hill. It is encompassed with a double brick wall, and has seven gates; but being seven miles in compass is too large to hold out a long siege. There are here several palaces of the nobility; that of Orange now belongs to the king of Prussia. The opera-house is built after the Italian manner, with rows of boxes, in which are chimneys. One is covered over with looking glass, so that they can sit by the fire, drink a bottle, and see what is doing. There are twenty public fountains, adorned with statues, at the corners of the most public streets, and in the middle of the town-house is one with Neptune, and the Tritons spouting out water, as well as the horse from his nostrils. The hospitals are well endowed, some of which are for the maintenance of strangers for three Days. There is also a foundling-hospital, and one for penitent courtizans.

Among the churches, that of St. Gudula is very magnificent. There are several monasteries and nunneries, two of which last are English. The nunnery called the Beguinage is like a little town, being surrounded by a wall and a ditch, and has little streets where each nun has an apartment. Six or seven hundred girls are educated here. In 1695 Brussels was bombarded by Marshal Villeroi, who demolished four thousand houses, the stadthouse, and several churches. In 1708 it was besieged again, by the elector of Bavaria; but the duke of Marlborough soon came to his assistance, and obliged him to raise the siege with precipitation. Marshal Saxe, the French general, took it in 1746, but it was restored back by the treaty of Aix la Chapelle. It is twenty three miles south of Antwerp, one hundred and fifty north-by-east of Paris, and one hundred and sixty-three east of London. Long. 4. 8. E. Lat. 50. 51. N.

BRUTE, an animal not having the use of reason, or that acts by mere instinct, in which sense it implies much the same with beast, and comprehends all animals, except the human species.

Philosophers are however far from being agreed on this subject; some making them mere machines, while others allow them both reason and immortality. Perhaps those come nearest the truth, who, by taking a middle course, avoid the two ex-

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tremes, and allow brutes to have imagination, memory, and passion; but deny that they have understanding or reason, at least in any degree comparable to that of mankind.

BRYONIA, bryony or wild-vine, in the materia medica, a perennial rough plant, growing wild in hedges, climbing on the bushes with curled tendrils.

Fresh bryony root, taken up in the beginning of spring, abounds with a thin milky juice; if the upper part of the root be bared of earth, and the top cut over transversely, the juice continues to rise gradually to the surface, for two or three days successively, and may be collected by forming a cavity in the middle to receive it. Both the root in substance, and the juice, have a disagreeable smell, and a nauseous, bitter biting taste: applied for some time to the skin, they inflame or even vesicate the part. On drying the one, or inspissating the other, they lose most of their acrimony, and nearly the whole of their ill scent. In summer, the root proves much less juicy, and weaker both in smell and taste.

This root, taken in powder from a scruple to a dram, proves a strong cathartic. It was formerly given, both as a purge, in maniacal and hydropic cases; and in smaller doses, as a resolvent and deobstruent, in uterine and asthmatic disorders, in which it is reported to have been of great efficacy. At present it is, in this country, very rarely made use of in either intention; on account, not entirely of the violence of its operation, for purgatives as violent as it are still retained in practice, but partly of its degree of activity in different states and forms, being very variable, and less ascertained than that of other cathartics in more general use. It is said, that when fresh it operates violently upwards as well as downwards; and that when dry, it acts with less violence, and chiefly by stool; that the juice, which issues from it spontaneously, purges mildly in doses of a spoonful, and that the fresh root, bruised and freed from its liquid by pressure, and afterwards dried, is still purgative.

Externally, the fresh root is employed in cataplasms, as a resolvent and discutient; against tumors, both of the scirrhus and oedematous kind, stagnations and coagulations of the blood from external injuries and ischiadic and other rheumatic pains.

BRYUM, in botany, a genus of mosses consisting of a stalk furnished with leaves,

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which arise immediately from the root: on this stalk stands a separate pedicle, with a conic capsule on its top, covered with a smooth operculum, and containing a fine powder.

BUBBLE, in philosophy, a small drop, or vesicle of any fluid, filled with air, and either formed on the surface of the fluid, as in rain, &c. or in its substance, by an internal motion of its component particles. Bubbles are dilatible and compressible; that is, they take up more or less space, as the included air is more or less heated, more or less pressed externally: because the included air acts equally in every direction.

BUBBLE, in commerce, a cant term given to projects for raising money on imaginary foundations, much practised in France and England in the Years 1719, 1720, and 1721.

BUBO, or **BUBOE**, in surgery, a tumour which arises, with inflammation, only in certain or particular parts to which they are proper, as in the arms-pits and in the groins. See **TUMOUR**.

The division of a bubo is generally twofold, the benign and the malignant; a bubo is said to be benign, when it arises spontaneously, without any preceding contagious and pestilential disease, as they frequently do in infants; those are also of this kind which come after benign fevers, being a critical discharge of the disease.

In buboes, which are unaccompanied with any other disease, the frequent taking of some cathartic medicine, with an addition of mercurius dulcis is found to be of great service; other medicines, which attenuate the blood, should be also used. When the inflammation is so gentle, as to give hopes of dispersion, it may be proper to apply discutient plasters externally, as *emplast. diachyl. simplex, de spermate ceti, de galbano, &c.*

But if the inflammation proves more violent, the pains more intense, and the discutient plasters avail nothing, it will be proper to bring it to suppuration, by the application of *emp. diachylon, cum gummis*, or something as effectual. But,

Pestilential BUBOES are distinguishable from other tumours, by their happening at a time, and in conjunction with the plague, and from their being accompanied, in the patient, with the symptoms proper to that distemper: These tumours are sometimes joined with carbuncles.

It is not without reason affirmed by some of the more learned and modern physicians, that almost the whole business

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of curing the plague consisted in carefully promoting the eruption of buboes. The patient, upon the first appearance of the tumours, should keep the house, or rather keep in a warm bed, to be more secure from the air.

In the external treatment, it is very serviceable to rub the tumified part pretty strongly with the hands or cloths; and, what is still preferable, to apply external maturative and emollient medicines, whereby they will come out the sooner; the patient will also find great benefit from the use of a cataplasm, made *ex fermento panis callide, vel solo, vel cum sale atque sinapi contrito*. To the external applications, it will be proper to join internal medicines, by the help of which the venom, lurking in the body, may be expelled in a gentle sweat.

Veneret BubO, a tumour with pain and inflammation, arising in the groin or arms-pits, after contact with an impure woman, who is afflicted with the venereal disease. The most certain signs of buboes being venereal are, the patients having to do with these women, and from their being, and having been, accompanied with gonorrhœas, chancres, or other symptoms of the venereal disease. With regard to the cure, there are many physicians who hold, that the dispersion of venereal buboes are equally improper as in the pestilential; they therefore judge it necessary to abstain entirely from bleeding, purging, and to forward the tumour to suppuration as fast as possible: however, others are for taking cathartic and mercurial medicines, together with a decoction of the woods, and other purifiers of the blood. The dispersion is to be effected with large doses of mercurius dulcis, as is usual in carrying off gonorrhœas.

BUBONOCELE, or **HERNIA INGUINALIS**, in surgery, a tumour in the inguen, formed by a prolapsus of the intestines, omentum, or both, through the processus of the peritonæum, and rings of the abdominal muscles.

The bubonocèle may arise from two causes, viz. a relaxation of the peritonæum and rings of the abdominal muscles, or some violent contraction and pressure of the abdominal muscles upon the intestines, as in jumping, lifting of great weights, coughing, hollowing, blowing a trumpet, riding on horse-back, a fall, &c.

When this disorder is formed insensibly, and by degrees, it is attended with but few and slight symptoms: when it arises from violent

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violent colds, exercises, eating too plentifully of gross and flatulent food, which will exasperate the disorder, the consequence will be violent pain and inflammation, sickness, vomiting, and the iliac passion. It may be further discovered from the tumour occasioned thereby in the groin, which proceeds up to the ring of the abdominal muscles; and when the intestine is not incarcerated, but returnable into the abdomen, the tumour subsides upon lying down. When the bubonocoele is incarcerated, so that the parts forming the tumour are not returnable into the abdomen, it usually appears with a great resistance to the touch, redness, and inflammation.

These ruptures are often attended with danger, especially the incarcerated ones, in which, if the intestine be not timely returned, but the stricture continues two or three days, red and livid spots appear upon the tumour, which denote a sphacelus or mortification; and if an universal cold sweat seizes the patient, he has generally but a few hours to live. When the omentum alone falls down, there is less danger than when it is accompanied with the intestines.

When the intestine is returnable, the patient should be laid on his back, with his thigh a little bent, to relax the integuments; then the tumour is to be gently pressed, or returned with the hands and fingers, after which a plaister and compresse are to be applied to the part affected, and retained with a proper truss, and a girdle or bandage, without taking them off for several months, or longer, as there is occasion. See *TUSS*.

When the intestine is not returnable, then the operation of incision becomes absolutely necessary, in order to dilate the parts. However, the surgeon may first try the repeated use of cataplasms, ointments, and laxative clysters, after bleeding; whereby the stricture is sometimes removed, and the intestine may be returned by the finger, without much difficulty.

BUCCANEERS, those who dry and smoke flesh or fish, after the manner of the Americans. This name is particularly given to the French inhabitants of the island of St. Domingo, many of whom hunt bulls or wild boars, in order to sell the hides of the former, and the flesh of the latter. The buccaneers are of two sorts: the buccaneers ox-hunters, or rather hunters of bulls and cows; and the buccaneers boar hunters, who are simply called hunters. Buccaneering is a term taken from

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Buccan, the place where they smoke their flesh or fish, after the manner of the savages, or on a grate or hurdle, made of brasil wood, placed in the smoke, a considerable distance from the fire: the place is a hut, of about twenty-five or thirty feet in circumference, all surrounded and covered with palmetto leaves.

BUCCANEERS also signify those famous adventurers of all the nations in Europe, who formerly joined together to make war against the Spaniards of America, cruising about in privateers, and taking all the vessels and small craft they could meet with.

BUCCINA, an ancient musical and military instrument. It is usually taken for a kind of trumpet, or crooked horn played on like a trumpet.

BUCCINATOR, in anatomy, a muscle on each side of the face, common to the lips and cheeks. Its uses are to bring the food into the way of the teeth; and the salival duct of Steno perforates it in the middle.

BUCCINUM, the **TRUMPET-SHELL**, a genus of univalve shells, shaped in some degree like a horn, or other wind-instrument. This is a very numerous genus, the principal species of which are the spindle-shell, the mitre-shell, the tower of Babel-shell, &c.

BUCENTAUR, a galeas, or large galley of the doge of Venice, adorned with fine pillars on both sides, and gilt over from the prow to the stern.

BUCK, among sportsmen, in his first year, is called a fawn; the second, a pricket; the third, a sorrel; the fourth, a fore; the fifth, a buck of the first head; and the sixth, a great buck. This beast is common in most countries, being corpulent as a hart, but in size resembling more a roe, except in colour; the males have horns, which they lose yearly; the females none at all. Their flesh is excellent nourishment.

BUCK-BEAN, in botany, the trifolium palastre, or marsh trefoil of authors.

* **BUCKINGHAM**, the chief town in Buckinghamshire, is seated low, and surrounded on all sides except the north by the river Ouse, over which there are three stone bridges. It contains about three hundred houses, and is governed by a bailiff and twelve capital burgesses; sends two members to parliament, and has a market on Saturdays. It has a free school and a county gaol. It has eight fairs, on

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Monday seven-night after Epiphany, March 7, May 6, Thursday in Whitsun-week, July 10, September 4, October 2, and November 8; all for cattle. It is sixteen miles north-west of Aylesbury, and sixty north-west of London. Long. o. 58. W. Lat. 51. 30 N.

*BUCKINGHAMSHIRE, is bounded on the east by Bedfordshire, Hertfordshire, and Middlesex; on the north by Northamptonshire, on the west by Oxfordshire, and on the south by Berkshire, which is separated from it by the river Thames. It is forty-two geographical, or forty-seven measured miles in length, and twenty-three or twenty-six in breadth. It is in the diocese of London, contains one hundred and eighty-five parishes, and sends fourteen members to parliament. The most remarkable towns are, Buckingham, Oulney, Newport, Stoney Stratford, Winslow, Aylesbury, Ivingo, Wendover, Amersham, High Wickham, Beaconsfield, Marlow, and Colnbrook.

The rivers that water this county are the Thames, the Coln, the Iſa, and the Ouse. The air is generally good, especially on Chiltern Hills. It produces fine corn and cattle, and in the vale of Aylesbury the sheep are of an extraordinary size, with fine fleeces. The principal manufactures are paper and bone lace.

BUCK'S-HORN-CRESS, the nasturtium of botanists. See NASTURTIUM.

BUCK-THORN, *Rhamnus*, a hedge tree or bush, whose branches are full of long stiff thorns, and yellowish green leaves about the size of the sloe-tree, but more neatly serrated about the edges. It grows in woods and hedges, and flowers in June, the berries being ripe about the latter end of September. The juice of the berries purge serous watry humours pretty briskly; and is good against the dropsy, gout, jaundice, and scurvy, and very serviceable against the itch, and all manner of eruptions on the skin.

Whoever purchases the buck-thorn berries, may distinguish whether they are right or not, by opening them, and observing the number of seeds in each, which should be four; as also by bruising of the berries on white paper, the juice giving a green tincture.

BUCK-WHEAT, the English name of the fago pyrum of authors; it is cultivated in many parts of England, and is a great improvement to dry barren lands. The best season for sowing the seed is in May: one bushel will sow an acre. The ground

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should be plowed and dressed in the same manner as for barley; and, if the soil is not very lean, it will yield a very great increase, as fifty or sixty bushels upon an acre, and is excellent food for hogs, poultry, &c. The flour of it is very white, and makes a very good sort of pancake, if mixed with a little wheat flour. The straw is good fodder for cattle; and the grain, given to horses among their oats, will make them thrive; but it must be broken in a mill; otherwise it is apt to pass through the cattle whole. It is commonly late in the season before it is ripe; but there is no great danger of the seed's failing, nor of suffering by wet after it is mown: it must lie several days to dry, that the stalks, which are hard, may wither before it is housed.

Buck-wheat is sown sometimes very thick, and suffered to grow until it is near flowering, and is then plowed in, which makes a very good lay for wheat or rye: but some people esteem it the better way to feed cattle with it, especially milch-cows, which they say will cause them to give a great deal of milk, and make both the butter and cheese very good. This will also afford food for cattle in the driest time, when all other grass is burnt up.

BUCKING of Cloth, among bleachers, the first operation or step towards whitening of cloth. See BLEACHING.

BUCKLE, a well known utensil, made of divers sorts of metals, as gold, silver, steel, brass, &c.

BUCKLER, a piece of defensive armour used by the ancients, and worn on the left arm. The figure was either circular, oval, or square; and generally adorned in a curious manner with the figures of gods and heroes, or of birds, beasts, or other productions of nature.

BUCKRAM, a sort of coarse cloth made of hemp, gummed, and calendered.

BUCOLIC, in ancient poetry, a kind of poem, relating to rural affairs. See PASTORAL.

BUD, among gardeners, that part of a seed which first begins to sprout, or rather the leaves which first appear.

BUD is also used to signify the sprout from whence the branch arises.

BUDDLE, in mineralogy, a name given by the English dressers of the ores of metals to a sort of frame made to receive the ore after its first separation from its grossest foulness.

BUDDLING, the act of cleansing or washing any ore.

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BUDDLING-DISH, a small, shallow vessel for washing ores by the hand.

BUDGE-BARRELS, among engineers, small barrels well hooped, with only one head; on the other end is nailed a piece of leather, to draw together upon strings like a purse. Their use is for carrying powder along with a gun or mortar, being less dangerous, and carried with more ease than whole barrels. They are likewise used on a battery of mortars, for holding meal powder.

BUFF, a sort of leather prepared from the skin of the buffalo, and dressed with oil in the manner of shammy. See SHAMMY.

BUFFALO, *Bubalus*, in zoology, an animal of the ox kind, with very large, crooked, and resupinated horns. It is equal to our largest oxen in size; and the colour is usually a blackish grey; but in this particular there are great varieties. The buffalo is a native of the East, but has been introduced in Italy, and some other parts of Europe; where it is kept as a beast of burden and draught.

BUFFET, a small apartment separated from the rest of the room by slender wooden columns, glass-doors, &c. for the disposing china, glass, plate, &c.

BUFFOON, a droll, or mimic, who diverts the public by his pleasantries and follies.

BUFO, the toad, in zoology. See TOAD.

BUG, or **BUGG**, in zoology, the English name for a genus of insects called by authors cimices. See CIMEX.

BUGLOSS, *Buglossum*, in the materia medica, a rough plant greatly resembling borage. It grows wild in waste gardens, flowers from June to the end of summer; and in winter dies to the ground, the roots abiding. The roots, leaves, and flowers, are ranked among the articles of the materia medica, but are very rarely made use of.

BUGULA, bugle, or middle confound, in the materia medica, a low plant with two kinds of stalks. It is found wild in woods and moist meadows, and flowers in May. The leaves discover, on first chewing, a sweetish taste, which is followed by a considerable bitterness and roughness. Infusions of them, or the expressed juice, are recommended as vulneraries, or as mild astringents and corroborants, in fluxes and other disorders. Some have observed, that they do not bind the belly, like the other consolida; but that on the

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contrary decoctions of them are gently laxative, and of great use in phthysis and internal ulcerations. The roots of the plant are considerably astringent, as appears both from their taste, and from their striking a black clour with solution of chalybeate vitriol.

BUILDING, a fabric or structure erected by art, either for devotion, magnificence, or convenience.

BUILDING is also used to signify the art of constructing and raising an edifice; in which sense it comprehends the expences, as well as the invention and execution of the design.

In the art of building, convenience, firmness, and pleasure, are to be considered; and these Sir Henry Wotton considers under two heads, the situation, and the work.

As to the situation, either that of the whole is to be considered, or that of its parts. In the first, regard must be had to the quality, temperature, and salubrity of the air; to the quality of the soil; to the convenience of water, fuel, carriage, &c. and to the agreeableness of the prospect. As to the situation of the parts, the chief rooms, studies, and libraries, should lie towards the East; those offices which require heat, as kitchens, brew-houses, bake-houses, and distillatories, towards the South; those that require a cool, fresh air, as cellars, pantries, and granaries to the North; as also galleries for paintings, museums, &c. which require a steady light. The ancient Greeks and Romans generally situated the fronts of their houses towards the South, but the modern Italians vary very much from this rule. And indeed it is absolutely necessary to have regard to the country, each being obliged to provide against its own inconveniences.

The simple forms of building are either circular or angular. The circular form is very commodious, and the most capacious of any, strong, durable, and very beautiful; but is the most chargeable of all others, and much room is lost by the bending of the walls, when it comes to be divided into apartments; besides an ill distribution of the light, unless it be from the center of the roof. For these reasons, the ancients employed this form only in their temples and amphitheatres, which had no need of partitions. As for angular forms, building neither loves many nor few angles. The triangle is condemned above all others as wanting both capaciousness and firmness, as also on account of

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of its not being resolvable, in the inter-
 al partitions into any other figure than
 its own. Buildings with five, six, or more
 angles, are more fit for fortifications than
 civil edifices. The rectangle, therefore,
 is generally chosen, as being a medium
 between the triangle and the pentagon, &c.
 As to mixed forms, partly circular, and
 partly angular, a judgment may be made
 of them, from what has been already
 said of simple ones. Let the builder,
 however, remember not to lose sight of
 uniformity, while he is in pursuit of va-
 riety.

The accessories or ornaments of a build-
 ing are fetched from sculpture and paint-
 ing. In the first, care ought to be taken
 that there be not too much of it, especi-
 ally at the entrance; and that both in
 fine and coarse pieces of sculpture, and
 likewise in placing figures aloft, the rules
 of perspective be strictly observed.

In painting, the chief things to be re-
 garded are, that the best pieces be placed
 in the best lights; and that they be suited
 to the intention of the rooms they are
 used in.

BULB, or **BULBOUS ROOT**, among
 gardeners, signifies a root of a roundish
 figure, and usually furnished with fibres
 at its base.

BULIMY, among physicians, a disease
 in which the patient is affected with an
 insatiable desire of eating, and unless in-
 dulged often falls into fainting fits.

BULK-HEADS, in naval architecture,
 certain partitions built up in different
 parts of a ship, either across or length-
 wise, to form and separate the various
 apartments.

BULL, *Taurus*, in zoology, the male
 of the ox kind. See **BOS**.

BULL, *Taurus*, in astronomy; see
TAURUS.

BULL'S EYE, in astronomy; see
ALDEBARAN.

BULL-FINCH, in ornithology, the
 English name of the *loxia* with a black
 head, and red breast. It is about the
 size of a common sparrow; and its wings
 are elegantly variegated with black and
 red.

BULL-FROG, the largest kind of
 frog. See **RANA**.

BULL, a written letter, dispatched by
 order of the pope, from the Roman chan-
 cery, and sealed with lead. It is written
 on parchment, by which it is distinguish-
 ed from a brief.

Golden BULL, an edict or imperial
 constitution, made by the emperor Charles

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IV. and esteemed as the *Magna Charta*
 or fundamental law of the German em-
 pire.

BULLET, an iron or leaden ball, or
 shot, wherewith fire-arms are loaded. See
BALL.

BULLION, uncoined gold or silver in
 the mass.

Those metals are called bullion, both be-
 fore and after they are refined, when
 melted down in bars or ingots, or in any
 unwrought body.

BULWARK, in ancient fortification,
 the same with what the moderns call ram-
 part. See **RAMPART**.

* **BUNGAY**, a town in Suffolk, hav-
 ing a market on Thursdays, and two fairs;
 on May 14, for horses and lean cattle,
 and on September 25, for hogs and petty
 chapmen. It is seated on a spot well
 watered by the river Waveney, which
 separates it from Norfolk. It has two
 parish churches, one of which is a hand-
 some structure, and near it are the ruins
 of a famous nunnery, in the middle of
 the town. The market is very great for
 corn, which is brought out of Norfolk,
 and here is a grammar-school, with ten
 scholarships for Emanuel college, Cam-
 bridge. The women are chiefly employed
 in knitting worsted stockings. It is thirty
 miles north-by-east of Ipswich, and one
 hundred and seven north-east of London.
 Long. 1. 30. E. Lat. 52. 35. N.

BUNUM, earth-nut, in botany, a
 genus of plants the fruits of which are oval,
 and divisible in two parts; the seeds two,
 and of an oval form, convex on one side
 and plane on the other.

BUNT, in naval affairs, the middle
 part of any square sail from top to bot-
 tom.

BUNTLINESS, small ropes passed up
 behind the yards, and running through a
 block or pulley on the yard, reach down
 before the respective sails. Their use is
 to haul the bunt of the sail close up to the
 yard, when it is to be brailled up, or furled.
 See **BRILL** and **FURL**.

BUNTING, in ornithology, the Eng-
 lish name of the *embezia*. Its head re-
 sembles, in some measure, that of a rail;
 the chin, breast, and belly, are of a yel-
 lowish white; the throat hath oblong
 black spots; the tail is about three inches
 long, and of a dusky red colour. It ge-
 nerally sits and sings upon the highest
 twigs of trees and shrubs.

* **BUNYAN (JOHN)** the celebrated
 author of the *Pilgrim's Progress*, was
 born at Elstow, near Bedford, in 1628.

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He was the son of a tinker, and, in the early part of his life, a great reprobate, and a soldier in the parliament army; but at length laid aside his profligate courses, became remarkable for his sobriety, and applied himself to obtain some degree of learning. About 1655 he was admitted a member of a Baptist congregation at Bedford, and was soon after chosen their preacher, but in 1660, was taken up, tried for presuming to preach, and was sentenced to perpetual banishment, and in the mean time committed to jail, where necessity obliged him to learn to make long-tagged thread laces for his support, and to add to his distress, he had a wife and several children, among whom was a daughter who was blind. In this cruel confinement he was detained twelve years and a half, and during that time wrote many of his Tracts, but he was at length discharged, by the humane interposition of Dr. Barlow. When king James's declaration for liberty of conscience was published, he was chosen pastor of a congregation at Bedford. He died at London, the 31st of August, 1688, aged sixty. He also wrote an excellent allegory, called *The Holy War*. His *Pilgrim's Progress* has been translated into most European languages, and is to this day as much read as almost any book extant.

BUOY, in naval affairs, a sort of close cask or round block of wood, fastened to the anchor by a rope of sufficient length to reach up from the anchor, which is sunk, to the surface of the water. It is used to shew where the anchor lies, that the ship may not come near it to entangle the fluke of it with her cable. See **ANCHOR**.

Buoys are also used to point out shallows, rocks or quick-sands; and are chained to anchors sunk in such places, that they may be avoided by shipping; these are generally very large and shaped like a cone or sugar loaf, called can-buoys: those used by shipping are wide in the middle, and taper to a point at each end, called nun-boys.

BURDOCK, in botany, the English name of the xanthium. See **XANTHIUM**.

BURGAGE, an ancient tenure in boroughs, whereby the inhabitants hold their lands, &c. of the king, or other superior lord of the borough, at a certain yearly rent. A dwelling house in a borough was anciently callad a burgage.

BURGESS, an inhabitant of a borough, or one who possesses a tenement therein.

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BURGESS is now generally used to signify the representative of a borough-town in parliament.

BURGGRAVE, properly denotes the hereditary governor of a castle or fortified town, chiefly in Germany.

BURGLARY, a felonious breaking and entering into the dwelling-house of another in the night-time, with an intent to commit some felony, whether the same be actually executed or not. The same offence committed by day is called house-breaking.

BURGOMASTER, the chief magistrate of the great towns in Flanders, Holland, and Germany.

BURIAL. See **FUNERAL**.

BURLESQUE, a jocosé kind of poetry, chiefly used by way of drollery and ridicule, to deride either persons or things. Both the word and thing seem to be modern, and the Italians appear to have the justest claim to the invention.

BURN, in surgery, implies a solution of the continuity of a part of the body by the force of fire. When either fire itself, or any instrument sufficiently heated by the fire, is applied to any part of the body, the fibres and small vessels at the place of contact will instantly corrugate and burst, while the blood and other contained fluids will be extravasated, and there stagnate and corrupt.

As a burn is not unlike an inflammation, in regard to degrees, so the method of cure in both is much the same. When there happens a slight burn, or one of the first degree, the most proper medicines, on all accounts, are resolvents, of which there are two kinds principally to be observed, the atrringent and the emollient. Mild atrringents are spirit of wine rectified, or camphorated: let the part affected be immersed in this spirit, and carefully fomented with linen cloths wet therein. Emollients are of linseed, or sweet almonds, of olives, of white lilies, or henbane, &c. with these the part affected should be frequently anointed. The vulgar method of applying the burnt part to a candle, or the fire, and keeping it in that position as long as you can bear it, repeating this process till all sort of heat and pain is removed, is frequently attended with success. The injured part may be fomented with water, as hot as the patient can bear it, till the pain and heat entirely disappear.

When the burn is of the second degree, which is attended with a blister, it seems improper to open the vesicle; or cut the

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skin already lacerated; but the best method, in this case, is, with all the haste possible, to apply one or other of the medicines prescribed in the first degree, and renewing it very frequently: if the pain continues, lenitive remedies are to be used; here the most eligible medicines are the linseed oil, Mynsicht's ointment, *unguentum nutritum*, &c. With these the part must be often anointed; or they must be spread on linen, and bound to the part affected: as the pain and heat gradually decrease, some plaster, as that of red lead, may be applied, in order to smooth and restore the skin. If this second degree be more intense than ordinary, and affects a great part of the body, it will be necessary forthwith to take away some blood, in proportion to the violence of the burn even till the patient faints, in order to prevent exulcerations, deformities by seams, and perhaps a gangrene: after which a strong cathartic should be used.

As to the third degree, in which a crust immediately covers the burnt part, it is very difficult, if not absolutely impossible, to cure it, without a suppuration. When this happens in the face, all diligence should be used to prevent deformity, which may be occasioned by a large cicatrix; therefore, in this case, the use of all plasters and ointments whatsoever is to be avoided: but you cannot be too solicitous in forwarding the casting off of the eschar, or crust, and the evacuation of the matter that is concealed under it; yet it should not be torn away with the knife, nor separated with the hands: the easiest and most successful method is by the use of emollients, such as have been mentioned already, applied warm, and repeated till the hard crusts separate from the live flesh; the part should be dressed two or three times a day, and at each dressing, if you should observe any portion of the crust tending to a separation from the rest, it should be removed with the forceps, and the remaining crust anointed with butter, at the same time never neglecting the use of fomentations. The crust being taken off, the wound must be cleansed and healed, the first of which offices may be executed by any mild digestive ointment, mixed up with *mel rosarum*: the medicines for healing are principally *unguentum diampholygos*, *vel de lithargyris*, &c. But if any portion of the eschar is left under these ointments and plasters, a danger follows of making a deformed cicatrix, from the constriction of the neighbouring parts, and from the acrimony of the continued sanies. Evacuations by bleeding

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and purging are always to be premised, and proper regulations, with regard to diet, must be complied with: the best method of encouraging the renovation of the skin, is by frequently holding the burnt part over the steam that rises from boiling water. But as to the fourth degree, which is always attended with extreme danger, where the burning has penetrated to such a depth as to corrupt and mortify all before it, almost to the very bone, all remedies are vain and useless, and there is no other way of assisting the patient, but by cutting off the affected limb, as is done in a sphacelus.

BURNET, the English name of a plant called *pimpinella* by Linnæus, and *tragopelium* by Tournefort.

It is a native of this country, and promises very great advantages as a green succulent food for cattle during the winter months; and the judicious Mr. Rocque, on observing, that burnet retains its verdure amidst all the inclemencies of that season, resolved to try the effect of giving it a good culture. He has succeeded therein to his utmost wish; and the plant bids fair to be of singular utility, where flocks of sheep are kept, because, as it preserves all its leaves unhurt by frost, the farmer may thereby have a constant stock of green food for his ewes and lambs, at a time when turnips and every other succulent plant may fail him.

In describing this plant, Mr. Miller distinguishes seven different species of it; but only three, or perhaps rather but two, of them seem to be sorts proper to be cultivated for the food of cattle. These are; 1. The *tragopelium majus*, umbella candida, greater burnet saxifrage, with a white umbel. 2. *Tragopelium alterum majus*, another greater burnet saxifrage; and, 3. The *tragopelium minus*, or lesser burnet saxifrage. All these are equally hardy plants, and natives of this island; but the largest sorts promise the greatest quantity of fodder, and therefore should, probably, be preferred by the husbandman. The first of the above-mentioned species of burnet grows naturally in woods, and on the side of banks near hedges, in several parts of England. It flowers in July, and the seeds ripen in Autumn. A variety of this with red flowers is frequently found among the other, and rises from the same seed. The second sort grows naturally in dry pastures in many parts of this island. The third or smaller sort of burnet, grows naturally in dry gravelly pastures in several parts of this country.

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In the meadows about Windfor, half the grass is burnet. Mr. Rocque has experienced, that it will grow in the driest land; for he has planted some of it even in the gravel walks in his garden, where every thing else is burnt up in the summer; but this never withers; one of the qualities of burnet being to continue in sap all the year. It is the opinion of many who have seen the barnet of his raising, that if this plant is generally cultivated, there will never be a scarcity of hay in England, even in the greatest drought.

The land on which it is sown should be in fine tilth, and free from weeds, especially couch-grass, which is here the most hurtful of all. A drag, that is to say, such a fork as the gardeners clean their asparagus with, is the best instrument for extirpating this weed. The dragging of an acre thus will cost six or seven shillings. If the land is poor, it should be dunged, and laid down very smooth. The seed may be covered with a very light harrow, for it will not bear to be buried deep, and the ground should then be rolled, that it may be smooth for mowing. It may be sown at any time between April and September.

Ten pounds of Burnet seed may do for an acre of land; but twelve, fourteen, or even sixteen pounds, will be better; because when burnet is thin, the plants grow so large, that the hay made of them is coarse. These will rise in eight or nine days after the sowing. If great numbers of weeds come up with them, it will be less chargeable to let these weeds grow with the burnet, till it is about five or six inches high, than to weed or hoe it. The whole may be then mowed, and gathered clean off, and the quick growth of the burnet afterwards will choke all other weeds. The heart of the burnet being almost within the ground, the scythe cannot hurt it.

If the burnet does not grow equally every where, some plants must be drawn where they are too thick, and planted where they are thinest; or the vacant spaces may be supplied from the nursery. If the land was not in good order to sow the seeds at a proper season, the burnet may be transplanted at Michaelmas from this nursery, and set at nine or twelve inches distance every way, according to the richness of the soil.

The seed sown in May may be mowed at the latter end of July. That sown in June will yield a pretty good crop, and must be cut but once; and the same of that which is sown in July.

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The plants produced by the seed sown in August should be mowed, to destroy the weeds. These mowings may either be given green to horses, or be made into hay. The first spring cutting will purge horses; and Mr. Rocque believes it will also cure the grease; but it is only the first crop that purges.

Burnet should be mowed but once the first year, in order to leave it rank in the winter; and in this case it will be ready to seed in February or March, or to mow again in April.

If natural grass grows among the burnet, it may be harrowed in the same manner as lucern; for, having a tap-root, the harrow will not hurt it: But it must not be ploughed, lest the roots should be broken in the ground.

When the seeds of this plant are to be saved, it must neither be fed, nor mowed, in the spring. The seed will be ripe about the middle of June, which must be reaped, like wheat, and threshed on a cloth. It should be threshed before it is too dry, because it is apt to shed, and it should afterwards be dried perfectly.

Burnet does not lose its leaves in drying; and though the hay made of it be sticky, it will after thrashing be very agreeable to horses, which are so fond of it, that they never waste any. One acre will produce upwards of three loads of hay, and above forty bushels of seed. Horses are fonder of this seed, than they are of oats; and Mr. Rocque is of opinion that it is a more proper food for those who do not labour hard, because it is not of so hot a nature. Burnet bears seed twice a year, and will afterwards yield a very good spring crop.

It is not only good for horses, but also for all manner of cattle; even for swine; and Mr. Rocque has experienced another virtue in it, which is, that being stung by a wasp, the leaves of this plant rubbed pretty hard upon the part so injured, immediately took off the inflammation.

Mr. Worlidge mentions as another excellent quality of this plant, that all good house-wives hold as an infallible rule, that there never need be any bad cheese or butter, but especially cheese, where fox-sfrage grows: "from whence," adds he, "it cometh, that the Netherlands abound much in that commodity, and only as it is supposed through the plenty of this herb." *Mills's Husbandry.*

BURNING, the action of fire on some pabulum or fuel, whereby the minute parts of those bodies are separated from

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one another, and put into a violent motion by the action of the fire. See FIRE.

BURNING-GLASS, a convex or concave glass, commonly spherical, which being exposed directly to the sun collects all the rays falling thereon into a very small space, called the focus, where wood, or any other combustible matter being put, will be set on fire.

Burning-glasses are of two kinds: the first, which is convex, called *lentes causticæ*, transmits the rays of light, and in their passage refract, or incline them towards the axis, having the property of lens's, and acting according to the laws of refraction. The second, which are the more usual, are concave; these reflect the rays of light, and in that reflection, incline them to a point in their axis, having the properties of specula or mirrors, and acting according to the laws of reflection. See **MIRROR** and **REFLECTION**.

Historians tell us, that Archimedes, by means of a concave mirror, burnt a whole fleet: and though the effect related be very improbable, yet does it sufficiently prove such things were then known. The machines then used, no-body doubts, were metallic and concave, and had their focus by reflection; it being agreed that the ancients were unacquainted with the refracted foci of convex glasses.

It seems difficult to conceive how they should know such glasses would burn without knowing they would magnify, which it is granted they did not, till towards the close of the thirteenth century, when spectacles were first thought on. But it is still more wonderful there should be three hundred years between the invention of spectacles and telescopes.

Among the ancients, the burning mirrors of Archimedes and Proclus are famous; by one of these the Roman ships besieging Syracuse, under the command of Marcellus, according to the relations of Zonaras, Tretzas, Galen, Eustathius, &c. and by the other, the navy of Vitellian besieging Byzantium, according to the same Zonaras, were burnt to ashes.

Among the moderns, the most remarkable burning mirrors are those of Settala, of Villette, and Tschirnhausen, and that by M. Buffon.

The effect of Villette's mirror, as found by Dr. Harris and Dr. Defaguliers, are, that a silver sixpence is melted in 7" and 23, a king George's halfpenny in 16", and runs with a hole in 34. Tin melts in 3", cast-iron in 16", slate in 3"; fossil shell calcines in 7", a piece of Pompey's

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pillar at Alexandria, vitrifies in the black part in 50", in the white in 54"; copper ore in 8", bone calcines in 4", vitrifies in 33. An emerald melts into a substance like a turquoise stone, a diamond weighing four grains, loses $\frac{1}{2}$ of its weight; the albestos vitrifies, as all other bodies will do, if kept long enough in the focus; but when once vitrified, the mirror can go no farther with them. This mirror is forty-seven inches wide, and is ground to a sphere of seventy-six inches radius; so that its focus is about thirty-eight inches from the vertex. Its substance is a composition of tin, copper, and tin glass.

Every lens, whether convex, plano-convex, or convexo-convex, collects the sun's rays, dispersed over its convexity, into a point by refraction; and is therefore a burning-glass. The most considerable of this kind is that made by M. de Tschirnhausen.

This glass vitrifies tiles, slates, pumice-stones, &c. in a moment. It melts sulphur, pitch, and all resins, under water; the ashes of vegetables, woods, and other matters, are transmuted into glass; and every thing applied to its focus, is either melted, turned into a calx, or into smoke. Tschirnhausen observes, that it succeeds best when the matter applied is laid on a hard charcoal well burnt.

Sir Isaac Newton presented a burning-glass to the Royal Society, consisting of seven concave glasses, so placed, as that all their foci join in one physical point. This glass vitrifies brick or tile in 1", and melts gold in 30".

Notwithstanding the prodigious density of the rays of the focus of these large burning glasses, yet it has been always observed, that the rays reflected to us by the moon, when at full, and centered in the focus of those glasses, produce no heat that is sensible in the least degree, as is demonstrated by holding a thermometer in the focus of lunar rays, which always remains without the least appearance of motion.

BURNING of Land, a very great improvement in husbandry, and is at this time used in many parts of this and other kingdoms, and has been practised from the earliest times. Virgil very expressly mentions, and greatly recommends it; and all the old writers of husbandry say much in its praise.

It does not take effect, however, in all sorts of ground. It is not proper for rich soils, nor for stony or chalky ones; nor is it

it a practice often to be repeated on any land, especially where the surface is very shallow; nor must corn be sown too long upon the land afterwards; for burning exhausts the good juices of the land, in some degree, as well as the bad ones. It is most profitably used to such lands as have laid a long time uncultivated, and over-run with rank weeds, such as four grass, fern, heath, furze, and the like. Some lands, when corn is sown upon them, run it up into straw, and make the ears but poor and light; these are, beyond all others, improved by burning. The usual methods of ploughing up for this is with a breast-plough, which a man pushes before him, and cuts the turf off the surface, turning it over when he has cut it to about eighteen or twenty inches long. The common way is only to pare it about half an inch thick; but if it be very full of weeds, with stubborn roots, it is better to go deeper.

If the season proves dry, the turf needs no more turning but dries as it lies. If it be wet, it is necessary to set it on edge, and keep it hollow till such time as the wind and air have sufficiently dried it. It is then to be piled up in little heaps, about the quantity of two wheel-barrows full in each heap; and if there be much roots and a good head upon it, there needs no farther care but setting it on fire, and the whole heap will be reduced to ashes; but if it be earthy and too dead to burn out by itself, there must be a heap of furze or heath laid under every parcel.

When the heaps are reduced to ashes, they are left upon the place till some rain comes to wet them; otherwise, in the spreading, they would all blow away. When they are wetted, the farmer takes the opportunity of a calm day, and spreads them as equally as possible over the whole land, cutting away the earth a little under the heaps, to abate its over-great fertility there. After this the land is to be ploughed but very shallow, and the corn is to be sown upon it only in half the quantity that it is upon other land; and the later this is sown the better. If it be wheat, the best time is the latter end of October; for if sown sooner, it is apt to grow too rank. The beginning of May is the proper time for cutting the turf off from these lands, because there is then time sufficient to get the land in order for sowing at the proper season. The whole charge of cutting, carrying, and burning the turf, is generally about twenty-four shillings an acre.

The turf is not to be burnt to white ashes; for this wastes a great part of its salt; it is only to be burnt so as to crumble all to pieces, and be in condition to spread well upon the land; and it is better that the heaps of it should burn slowly and gradually than furiously.

Some farmers stub up furze, heath, and the like, and covering heaps of them with the parings of the earth, set fire to them; others burn the stubble of the corn-fields; and others the stalks of all sorts of weeds, and add half a peck of unslacked lime to every bushel of ashes. They cover the lime with the ashes, and leave heaps in this manner till there comes some rain to flake the lime; and after this, they spread the mixture carefully over the field. There is one great advantage attending this sort of manure, which is, that it does not breed weeds like the common way with dung, but only fills the ears of the corn, not running them up into stalk; but it is proper to add some dung to these lands at the time of ploughing them up for a second or third crop of corn. *Mortimer's Husbandry.*

BURNING, in enamel painting. See *ENAMEL Painting*.

BURNISHER, a round polished piece of steel, serving to smooth and give a lustre to metals.

Half burnishers are used to solder silver, as well as to give a lustre. See *SOLDERING*.

BURNISHING, the art of smoothing or polishing a metalline body, by rubbing of it with a burnisher.

BURR, the round knob of a horn next a deer's head.

BURY *St. EDMUND's*, a corporation town in Suffolk, with a market on Wednesdays. It is seated near a small river, running on the east-side of it, which becomes navigable as it advances towards Lynn. It was formerly famous for its abbey, which surpasses all others in England. It had three churches in its yard, two of which are yet standing, and are handsome churches. The assizes for the county and the quarter-sessions, for the liberty of *St. Edmund's*, are usually kept here. It is governed by an alderman, a recorder, twelve capital burgesses, and twenty-four common council-men. It sends two members to parliament. There is a very good grammar-school. The houses are well-built, but the streets uneven. It has only one fair for millinery goods, butter, and cheese, but it continues for a fortnight. It is

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fourteen miles east of Newmarket, and seventy-four north-north-east of London. Long. 0. 36. E. Lat. 52. 20. N.

BURSA PASTORIS, shepherd's-purse, in botany, a distinct genus of plants.

BURTHEN, in naval affairs, the weight or measure of any species of goods, &c. that a ship will carry.

BUSHEL, a measure of capacity for dry things, as grain, fruits, dry pulse, &c. containing four pecks, or eight gallons, or one-eighth of a quarter.

◊ **BUSIRIS**, in fabulous history, king of Egypt, the son of Neptune and Libya, was killed by Hercules, for sacrificing strangers, and treating them with cruelty. Melancthon, from his researches, thinks it probable that Busiris was the Pharaoh who occasioned the destruction of the new born sons of the Israelites.

BUSKIN, a kind of shoe, somewhat like a boot, and adapted to either foot, and worn by either sex.

This part of dress, covering both the foot and mid-leg, was tied underneath the knee; it was very rich and fine and principally used upon the stage by actors in tragedy. It was of a quadrangular form, and the sole was so thick, as that by means thereof, men of ordinary stature might be raised to the pitch and elevation of the heroes they personated. The colour was generally purple on the stage: and was distinguished from the sock, worn in comedy, that being only a low common shoe. The buskin seems to have been worn, not only by actors, but by girls, to raise their height: travellers and hunters also made use of it, to defend themselves from the mire.

In classic authors, we frequently find the buskin used to signify tragedy itself, it being a mark of tragedy on the stage.

It is also used to imply a lofty strain, or high style.

BUSS, in maritime affairs, a small sea vessel, used by us and the Dutch in the herring-fishery, commonly from forty-eight to sixty tons burden, and sometimes more.

BUST, or **BUSTO**, in sculpture, &c. the figure or portrait of a person in relief, shewing only the head, shoulders and stomach, the arms being lopped off: it is usually placed on a pedestal or console.

BUSTARD, in ornithology, the English name of a genus of birds. See **ORIS**.

BUTCHER-BIRD, in ornithology. See **LANIUS**.

BUTCHER'S-BROOM, *Ruscus*, in botany. See **RUSCUS**.

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BUTLER, *Buticularius*, the name anciently given to an officer in the court of France, being the same as the grand echanfon, or great cup-bearer of the present times.

BUTLER, an officer in the houses of princes and great men, whose principal business is to look after the wine, plate, &c.

BUTMENTS, in architecture, those supporters or props on or against which the feet of arches rest. See **BRIDGE**.

BUTOMUS, the flowering-bush, in botany, a genus of plants, said to be of an aperient and deobstruent quality.

BUTT, in naval affairs, the end of any plank in a ship's side, which closes with another: when a plank is loosened at one end by the labouring of a ship, or other accident, it is said to be started.

BUTTER, a fat aqueous substance, prepared from milk by churning it. See **DAIRY**.

BUTTER, among chemists, a name given to several preparations, on account of their consistence resembling that of butter; as butter of antimony, butter of arsenic, of wax, of lead, of tin, &c.

BUTTER-BUR, in botany, the English name of a genus of plants, called by authors petasites. See **PETASITES**.

BUTTER-FISH, a name given to the gunnelus.

BUTTERFLY, the English name of a numerous genus of insects, called by zoologists, papilio. See **PAPILIO**.

BUTTERFLY-FISH, a species of the blennius of ichthyologists, with a furrow between the eyes. It is common in the American seas.

BUTTERFLY-FLOWER, a name given by some to the orchis.

BUTTERFLY-SHELL, in natural history, the English name of a species of voluta.

BUTTERIS, in the manege, an instrument of steel, fitted to a wooden handle, wherewith they pare the foot, or cut the hoof of an horse.

BUTTER-MILK, a kind of serum that remains behind, after the butter is made. Of this, curds may be made; and the whey kept in a clean strong vessel, is an excellent cooling, wholesome drink, to be used in the summer instead of other drink, and will quench the thirst better than beer.

Butter-milk is excellent food, in the spring especially, and particularly recommended in hectic fevers.

BUTTER-WORT, in botany, the English name of a distinct genus of plants, called

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called by Botanists *pingicula*. See *PRINUS*.

BUTTERY; a room in the houses of noblemen and gentlemen, belonging to the butler, where he deposits the utensils belonging to his office, as table linen, napkins, pots, tankards, glasses, salvers, &c.

BUTTOCK, in naval architecture, the round parts of a ship behind, under the stern, terminated by the counter above, and the after-part of the bilge below.

BUTTON, an article in dress, whose form and use are well known.

Buttons are made of various materials, as mohair, silk, horse-hair, metal, &c.

Gold Twiss BUTTONS. The mould of these buttons is first covered with silk in the same manner as that of common buttons. This being done, the whole is covered with a thin plate of gold or silver and then wrought over in different forms with purl and gimp. The former is a kind of thread composed of silk and gold wire twisted together; and the latter, capillary tubes of gold or silver, about the tenth of an inch in length. These are joined together by means of a fine needle filled with silk, thrust through their apertures, in the same manner as beads or begies.

The manner of making Metal BUTTONS. The metal with which the moulds are intended to be covered is first cast into small ingots, and then flatted into thin plates, or leaves, of the thickness intended, at the flattings-mills; after which it is cut into small round pieces proportionable to the size of the mould they are intended to cover, by means of proper punches on a block of wood covered with a thick plate of lead. Each piece of metal thus cut out of the plate is redaced into the form of a button, by beating it successively in several cavities, or concave moulds of a spherical form, with a convex punchcon of iron, always beginning with the shallowest cavity or mould, and proceeding to the deeper, till the plate has acquired the intended form: and the better to manage so thin a plate, they form ten, twelve, and sometimes even twenty-four to the cavities, or concave moulds, at once; then heating the metal, during the operation, to make it more ductile. This plate is generally called by workmen, the cap of the button.

The form being thus given to the plates, or caps, they strike the intended impression on the convex side by means of a similar iron punchcon in a kind of mould

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engraved on creux, either by the hammer, or the press used in coming. The cavity or mould, wherein the impression is to be made, is of a diameter and depth suitable to the sort of button intended to be struck in it; each kind requiring a particular mould. Between the punchcon and the plate is placed a thin piece of lead, called by workmen a hob which greatly contributes to the taking off all the strokes of the engraving; the lead by reason of its softness, easily giving way to the parts that have relievio; and as easily insinuating itself into the traces and indentures.

The plate thus prepared makes the cap or shell of the button. The lower part is formed of another plate, in the same manner, but much flatter, and without any impression. To the last or under plate is soldered, a small eye made of wire, by which the button is to be fastened.

The two plates being thus finished, they are soldered together with soft solder, and then turned in a lathe. Generally indeed they use a wooden mould, instead of the under plate; and in order to fasten it, they pass a thread or got-a-cross, through the middle of the mould, and fill the cavity between the mould and the cap, with cement, in order to render the button firm and solid; for the cement entering all the cavities formed by the relievio of the other side, sustains it, prevents its flattening, and preserves its bolle or design.

BUTTON, among gardeners, a flower or cluster of leaves not yet expanded.

Buttons are a kind of ova, out of which arise either leaves alone, or intermixed with flowers. Leaf buttons are smaller and more pointed than flower buttons. Among trees which bear kernel fruit, each button produces several flowers; and among stone-fruit trees, each button yields but one flower.

BUTTRESS, a kind of borment built archwise, or a mass of stone or brick, serving to prop or support the sides of a building, wall, &c. on the outside, where it is either very high, or has any considerable load to sustain on the other side, as a bank of earth &c.

BUXTON-WELLS, a place much frequented on account of its celebrated medicinal waters; which are the hottest in England, except those of Bath.

These waters greatly promote digestion, unless they are drank too long, in which case they relax the stomach, and retard all digestion: they are well adapted to obstructions

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obstructions of every kind, whence they produce surprising effects in gouty, rheumatic, and scorbutic pains: their irritation and effects are relaxation and dilution; and wherever these are indicated, this water will be of the greatest service: it is of great benefit to those obstructions which arise from a sharpness, saltness, or earthiness of the blood and lymph, or from an accidental disposition to a rarefaction of the blood. As this water is warm, highly impregnated with a mineral steam, vapour, or spirit, it is signally beneficial in cramps, convulsions, dry asthma, bilious cholic, stiffness, &c. They advise both drinking and bathing in the use of these waters; but the latter is of bad consequence in the gout, inward inflammations, fevers, dysentery, large and inward tumours, or in an outward pressure of the body.

BUXUS, the *Box-Tree*, in botany, a genus of ever green shrubs, with numerous branches, clothed with firm, shining, somewhat oval leaves; the wood is of a yellow colour, and more compact and ponderous than any of the other European woods: the flowers are imperfect; the fruit which grows on a distinct part of the tree, is a green berry, divided into three cells, containing six small seeds. It is found wild in some parts of England. It is said that the leaves in substance, and infusions or decoctions of them are aperient and purgative.

From experiments, it appears that box-wood contains little active matter; and that this matter is not of the pungent resinous, but of the saline kind; and consequently that it differs greatly from guaiacum wood, to which it is by many writers supposed to be similar.

BUZZARD, *Buteo*, in ornithology, the English name of several species of the hawk-kind, distinguished from each other by particular epithets; as, the bald buzzard, the common buzzard, the moor-buzzard, &c.

* **BYBLIS**, in fabulous history, the daughter of Miletus and Cyane, who falling passionately in love with her brother Caunus, he detesting the thought of incest, fled from his country, and the following him weeping, was turned, by the Naiades, into a fountain.

BY-LAWS, or **BYE-LAWS**, peculiar laws for the good government of a city, court, or other community made by the general consent of the members.

* **BYNG**, (**GEORGE**) lord viscount Torrington, was born in 1663, and at fifteen went a volunteer to sea, with the

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king's warrant. But in 1681, he quitted the sea service, upon the invitation of general Kirk, governor of Tangier, served as a cadet in the grenadiers of that garrison, and arrived to the rank of lieutenant. However, in 1684, after the demolition of Tangier, he was appointed lieutenant of the Orford, from which time he constantly kept to the sea service. The next year he went lieutenant of his Majesty's ship the *Phoenix*, to the East-Indies, where engaging and boarding a Zingianian pirate, who maintained a desperate fight, most of those who entered with him were slain, himself greatly wounded, and the pirate sinking, he was taken out of the sea, with scarce any remains of life. He was, in 1702, raised to the command of the *Nassau*, a third rate, and was at the taking and burning the French fleet at Vigo, and the next year he was made rear admiral of the red. In 1704, he commanded the squadron that took Gibraltar, and, in 1708, was made admiral of the blue, in 1711 admiral of the white, and in 1715 created a baronet. In the reign of queen Anne he prevented an invasion in Scotland, and rescued the city of Edinburgh from the threatened attack of a French squadron, which had numerous forces on board; and in the reign of Geo. I. when the discord of princes was on the point of embroiling Europe again in a war, he, with singular success, interposed, and, with a British fleet, crushed, at one blow, the laboured efforts of Spain to set up a power at sea, and advanced the reputation of our arms in the Mediterranean to such a pitch, that the British flag gave laws to the contending parties, and enabled us to settle the tranquility that had been disturbed. For this last important service, George I. wrote him a letter of thanks with his own hand, his Imperial majesty did the same, and also sent him his picture set with large diamonds, and at home he was made treasurer of the navy, rear-admiral of Great Britain, one of his majesty's privy council, and soon after, in 1721, he was created viscount Torrington, and baron Byng, of Southill, in Bedfordshire; and, in 1725, he was made one of the knights of the Bath, upon the revival of that ancient and honourable order. His late majesty, on his coming to the throne, appointed him first lord commissioner of the admiralty, in which high station he died, in January, 1733, in the seventieth year of his age.

* **BYNG** (the honourable **GEORGE**) esq. son of the former, was bred to the sea, and rose to the rank of admiral of the blue,

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in which station he was sent with a British fleet, in 1756, to the relief of Fort St. Philip, in the island of Minorca, which had for some time been besieged by the French. He arrived off Minorca, and on the 20th of May in that year, engaged the French fleet, commanded by M. Galissoniere; but this engagement ending very little to the satisfaction of the English nation, and Minorca being soon after surrendered to the enemy, Mr. Byng was sent for home, and tried by a court-martial, which ended the 27th of January, 1757; when sentence of death was passed upon him, for not doing his utmost to take, seize, and destroy the ships of the French king. The court unanimously agreeing that he fell under part of the twelfth article of the Act of the 22d of king George II. for amending the laws relating to the government of his majesty's ships; but at the same time drew up an address to the

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lords of the admiralty, praying them to recommend admiral Byng to his majesty's clemency. But this address not being attended with success, he was shot on board the *Monarque*, in Portsmouth harbour, the 14th of March, 1757.

BYSSUS, in botany, a genus of mosses, consisting of plain, simple, and capillary filaments. The byssus is the most imperfect of all vegetables, no part of its fructification having been hitherto discovered: its filaments are uniform, and often so fine as to be scarce discernable singly; though in a cluster, they make a kind of fine down. Botanists are not agreed whether the byssus be properly a moss or fungus, Linnæus is of the latter opinion, and the generality of botanists of the former.

BYSSUS, that fine Egyptian linen, whereof the tunics of the Jewish priests were made.

BYZANT. See **BEZANT**.

C A A

C The third letter of the alphabet, is pronounced like *k*, before the vowels *a*, *e*, and *u*; but like *s*, before *e*, and *y*.

As an abbreviation, **C** stands for *Caius*, *Carolus*, *Cæsar*, *condemno*, &c. and **CC** for *consulibus*.

As a numeral, **C** signifies 100, **CC** 200, &c.

C, in music, after the *cliff*, intimates, that the music is in common time, which is either quick or slow, as it is joined with *allegro* or *adagio*: if alone, it is usually *adagio*.

If the **C** be crossed or turned, the first requires the air to be played quick, and the last very quick.

CAABA, a square edifice of stone in the temple of Mecca, supposed to have been built by Abraham and his son Ishmael: being the part principally revered by the Mahometans, and to which they always direct themselves in prayer. The length of the caaba is about twenty-four cubits, its breadth twenty-three, and height twenty-seven cubits; the door, which is on the east-side, is four cubits from the ground, and the floor level with the bottom of the door. In the corner next this door is the famous black stone, which

C A B

is set in silver, and exceedingly respected by the mahometans. The pilgrims kiss it with great devotion, and it is by some called the right hand of God on earth. It is fabled to be one of the precious stones of Paradise, which fell down to the earth with Adam, and being taken up again at the deluge, was brought back by the angel Gabriel to Abraham, when he was building the caaba.

CAB, or **KAB**, a Hebrew measure of capacity. The cab of wine contained two English pints; the cab of corn 2 5-6ths pints, corn measure.

CABALA *Vein*, in natural history, a name given by the Suffex miners to one kind of the iron ore commonly wrought in that country. It is a stony ore, of a brownish colour, with a blush of red, which is more or less conspicuous in different parts of the same masses.

CABBAGE, *Brassica*, in botany, a genus of plants; of which Tournefort has enumerated 25, and Mr. Miller 22, species. All the common sorts of cabbages are largely cultivated about London. The common, white, red, flat, and long-sided ones, are chiefly for winter use. The seeds of these sorts must therefore be sown in the middle of March, in beds of good fresh earth;

C A B

earth; and in April, when the young plants will have about eight leaves a-piece, they are to be pricked out into shady borders, about three inches square; and about the middle of May they must be transplanted to the places where they are to remain; and this is commonly between cauliflowers or artichokes, at about two feet distance in the rows. They must be watered at times, and the earth must be hoed up about their roots, and kept clear from the weeds.

These cabbages will be fit for use soon after Michaelmas, and will continue till February, if not destroyed by bad weather; to prevent which the gardeners about London pull up their cabbages about November, and trench the ground in ridges, laying their cabbages against the ridges, as close as possible on one side, burying their stems in the ground; and in this manner they let them remain till after Christmas, when they cut them for the market.

The Russian cabbage is small, and not much cultivated now. It is to be raised as the others, but may be planted nearer, as not being so large. It is fit for use in July.

The early Battersea and sugar-loaf cabbages are sown for summer use, and are commonly called Michaelmas cabbages. The season for sowing these is the beginning of July, in an open spot of ground. It is common to sow spinach in the same beds with these, hoeing it up from about their stalks in spring: in May and June these begin to turn their leaves for cabbaging, and may be brought to it much sooner than naturally they would, by tying them about with an ozer band.

The Savoy cabbages are for winter use, and are to be sown about the beginning of April; they are to be treated as the common cabbage, and planted out at two feet distance, in an open place.

The bore-cole may be cultivated in the same manner, but must be planted only at one foot distance; these are not fit to eat till the frosts have nipped them.

The method of getting good cabbage seed is this: choose out some fair plants in October, pull them up, and hang them up three days, with the root upward, in a shady place; then plant them under a warm hedge, burying the whole stalk and half the cabbage in the earth; cover them with culm, if the winter be severe, and in spring they will shoot out many branches. When these begin to push, the ends of the upper ones should be cut off, to give strength to the other pods. The seeds must be preserved from the birds, by planting

C A B

some lime-twigs about the plants, where the catching one or two will intimidate the rest. When ripe it must be threshed out, and kept for use. *Miller's Gardener's Dictionary.*

CAJON CABBAGE, a large cabbage shrub, which grows in the province of the Lower Mayne in France, where it is cultivated with great advantage.

CABBAGE-TREE, *palma maxima* or *palmeis royal*, a very beautiful tree, common in several parts of America.

It has acquired the name of royal from its remarkable height, majestic appearance, and elegance of its waving foliage: neither the tall cedars of Lebanon, nor any of the trees of the forest, are equal to it in height, beauty, or proportion. It is generally as straight as an arrow; and scarce can a pillar of the nicest order in architecture be more regular, especially when it is of about thirty years growth: and as there is a natural involuntary pleasure arising from the harmony of just geometrical proportions, striking the eye of the most unskilful and ignorant beholder, it is not strange that these trees are universally admired. Writers of wonders represent some of them to be three hundred feet in height: however, Mr. Hughes informs us, that in Barbadoes, where they are more numerous than in the other islands, that they do not exceed one hundred and thirty-four feet.

The trunk of this tree, near the earth, is about seven feet in circumference, the whole body growing tapering to the top.

CABBAGING, among gardeners, a term used for the knitting of cabbages into round heads.

CABBALA, among the Jews, is properly the mystical interpretations of their scriptures, handed down by tradition. The word is Hebrew, and literally signifies traditions.

The cabbala is, properly, the oral law of the Jews, delivered down, by word of mouth, from father to son: and it is to these interpretations of the written law our Saviour's censure is to be applied, when he reproves the Jews for "making the command of God of none effect through their traditions."

CABBALISTS, those Jewish doctors who profess the study of the cabbala. In the opinion of these men, there is not a word, letter, or accent, in the law, without some mystery in it.

CABECA, or **CABESSE**, a name given to the finest silks in the East-Indies.

CABIN, in naval architecture, an apartment in a ship for any of the officers

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to eat, drink, and sleep in. The great cabin is chiefly intended for the captain or principal officer; but there are besides these several of a smaller kind for the inferior officers. The bed-places of the sailors, if they are built up at the ship's-side between decks, which is often the case in the merchant ships, are likewise denominated cabins.

CABINET, is a kind of press or chest, with several doors and drawers to lock up the most precious things, or only to serve as an ornament in chambers, galleries, or other apartments. There are common cabinets of oak, or of chestnut; varnished cabinets of China and Japan; cabinets of inlaid work; some of ebony, and other scarce and precious woods.

CABINET of natural History, a building containing all the curiosities of nature, digested in a proper manner. Such a building might indeed be called, with more propriety, a museum or repository; cabinet here, therefore must be understood in a larger sense than the common acceptation of the word, as herein are exhibited to our view the animal, vegetable, and mineral kingdoms at once: in short, an epitome of nature.

The knowledge of natural history improves, as collections of this kind are made more perfect; and our own age has first set on foot establishments that deserve the name of cabinets of natural history.

CABLES, in naval affairs, thick strong ropes, composed of hemp, bass, or Indian grass, used to retain a ship at anchor in a proper place, where she may want to remain. See **ANCHOR**.

All ships have, or ought to have, at least three cables, the sheet cable, and the two bowers, best and small.

Cable is also said of ropes which serve to raise heavy loads by the help of cranes, pulleys, and other engines. The name of cable is usually given to such as have at least three inches in diameter.

Every cable, of what thickness so ever, is composed of three strands, each of which is formed of three smaller strands; and each of those of a certain number of rope-yarns, which is more or less in proportion to the size of the cable.

The number of threads each cable is composed of being thus always proportioned to its length and thickness, its weight and value are determined by this number of threads: thus a cable of nine inches in circumference ought to consist of three hundred and ninety-three rope-yarns, and

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weigh one thousand five hundred and seventy-two pounds; and on this foundation is calculated the following table, very useful for all persons engaged in marine commerce, who either fit out merchantmen on their own account, or freight them for the account of others.

A table of the number of threads and weight of cables of different circumferences.

Circumference in inches;	Threads, or rope-yarns.	Weight in pounds.
9	393	1572
10	485	1940
11	598	2392
12	699	2796
13	811	3284
14	932	3808
15	1093	4372
16	1244	4976
17	1404	5616
18	1574	6296
19	1754	7016
20	1943	7772

To serve the CABLE is to bind it about with ropes or other materials to keep it from being galled or chafed in the hawse. See **HAUSE**.

Splicing the CABLE is to interweave the ends of two cables together, or the two ends of one that had been broke.

Pay away the CABLE is to let more out of the ship.

CABOCHED, in heraldry, is when the heads of beasts are borne without any part of the neck, full faced.

CACAO, the chocolate-tree, in botany, a genus of trees. See **THEOBROMA**. The fruit of this tree is an oblong roundish nut, the produce of a small American tree, bearing a large red pod, shaped like a cucumber, which contains thirty or more of the nuts. There are several sorts of these nuts in the shops, distinguished by their size, and the place whence they are brought: the larger kind, from the province of Nicaragua in Mexico, is most esteemed.

Cacao nuts have a light agreeable smell, and an unctuous, bitterish, roughish, not ungrateful taste: those of Nicaragua and Caracco are the most agreeable; those of the French Antilles, and our own American islands, the most unctuous. All the sorts, thoroughly comminuted and committed to the press, yield a considerable quantity of a fluid oil, which is not liable to grow rancid in long keeping; and hence is recommended as a basis for odoriferous unguents, and the compositions called apoplectic balsams: but the principal use of these nuts is for the preparation

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of the dietetic liquor, chocolate; a mild unctuous fluid, supposed to be serviceable in consumptive disorders, emaciations, and an acrimonious state of the juices in the first passages. See **CHOCOLATE**.

CACHEXIA, an universal bad habit of body, proceeding from a defect in nutrition, which must arise either from a depravation of the nutritious juices, or a defect in the vessels which ought to receive these juices; or a deficiency in that action of the animal economy, by which a part of the circulating juices is applied to the solids for their nutrition.

The nutritious juices are depraved by aliments which are superior to the powers of digestion; that is, which cannot be digested and assimilated by the proper organs. Of this sort are all crude, farinaceous, and legumine vegetables, which, on a weak stomach, are subject to form a kind of tenacious paste. Add to these all sorts of food which are hard, fibrous, fat, acrid, aqueous, and viscid. Among these may justly be reckoned some indigestible substances which depraved appetites sometimes covet, as cinders, chalk, sand, or lime.

These defects, in the organs of digestion, are brought about in various manners; as by all profuse secretions of what kind soever, as violent vomitings, diarrheas, dysenteries, or hæmorrhages; by a schirrous disorder of any of the viscera; or by a retention of something in the body which ought to be excreted.

According to the different colour, bulk, tenacity, acrimony, and fluidity of the stagnating liquids, various appearances arise, which may be esteemed symptoms of a cachexy. Thus, the skin appears white, yellow, livid, red, green, black, or tawny; the patient perceives a sensation of gravity; tumours arise under the eyes, and affect the more thin parts of the body. Add to these flatulencies and œdematous tumours of the parts remote from the heart; palpitations of the heart and arteries, which are augmented by the least motion; crude and thin urine; spontaneous and evidently watery sweats; all which are succeeded by emaciation of a leucophlegmatia, and dropsy.

The principal rules to be observed in the cure are,

First, to administer such aliment as approaches nearly to the nature of the healthful fluids of the body, which are easily digestible; which are in their nature opposite to the cause of the disorder; and which are agreeable to the patient.

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Secondly, to promote the digestion of such aliments, by seasoning them with proper aromatics; by drinking proper quantities of generous wine; and by exercise and air.

Thirdly, to dispose the organs of digestion to perform their duties by proper gentle digestives, vomits, purges, and corroborants.

Fourthly, as soon as the passages are relaxed, and the morbid matter is attenuated, to promote its expulsion, by attenuating diuretics, and sudorifics.

Lastly, to complete the cure by chalybeats, alkaline and saponaceous substances, together with walking, riding, or other proper exercises, frictions and baths.

The cause, however, of this distemper only can determine the choice of all these, and the manner of applying them.

When a cachectic consumption arises from too great an acrimony of the juices, the particular species of acrimony must, if possible, be discovered. *Boer. App.*

CACTUS, in botany, a genus of plants, comprehending the torch-thistle, melon-thistle, pereskia, and cochineal plant: It is a culinary plant, which is blanched like celery, and, like that, eaten raw with pepper and salt in Italy. In the medicinal virtues it agrees with the cypara, or artichoke.

CADE, a cag, cask, or barrel. A cade of herrings is a vessel containing the quantity of five hundred red herrings, or of sprats one thousand.

* **CADE**, (JACK) killed by Alexander Iden, sheriff of Kent, in 1451.

CADE-OIL, an oil much used in France and Germany. It is prepared from a fruit of a species of cedar, called *oxycedrus*.

CADENCE, in ancient music, a series of a certain number of notes, in a certain interval, which strike the ear agreeably, and especially at the end of a song, stanza, &c. It consists ordinarily of three notes. Cadence, in the modern music, may be defined a certain conclusion of a song, or the parts of a song, which divide it, as it were, into so many numbers or periods. It is when the parts terminate in a chord or note, the ear seeming naturally to expect it; and is much the same in a song as the period that closes the sense in a paragraph in discourse.

All cadences are to be accommodated to the characters of the airs.

Cadence, with some French musicians, is synonymous with a shake. See **SHAKE**.

CADENCE, in the management, an equal measure or proportion observed by a horse in all his motions.

CADENCE,

CADENCE, in rhetoric and poetry, the running of verse or prose, otherwise called the numbers.

CADET, a military term, denoting a young gentleman who chuses to carry arms in a marching regiment, as a private man. His views are to acquire some knowledge in the art of war, and to obtain a commission in the army. Cadet differs from volunteer, as the former takes pay, and the latter serves without any pay.

CADI, or **CADHI**, a judge of the civil affairs in the Turkish empire.

It is generally taken for the judge of a town, judges of provinces being distinguished by the appellation of *mollahs*.

In Biledulgerid, in America, the *cadi* decides in spiritual affairs.

***CADIZ**, by the Romans called *Gades*, by the *Phœnicians*, *Gadir*, or *Gaddir*. The Tyrants first built it; and after them it was possessed by the Carthaginians, from whom it came under the dominion of the Romans. It is a famous trading-city of Andalusia, in Spain, lying on the N. W. extremity of the long and irregular neck of land of an island which extends itself from S. E. to N. W. the eastern part of which is called Cadiz, and the S. E. part the island of Leon. It is joined to the main-land, from which only a narrow channel or arm of the sea separates it, by means of the bridge Suaco, both ends of this being defended by redoubts, and other works thrown up of earth. The island, from Fort St. Catalina to the island of Pedro, is five miles long, and from the S. point near the latter to the N. point just by the above-mentioned bridge, almost two miles broad. It produces little corn, but the best Spanish wine; and upon it are some pasture grounds, and on the side of the harbour great quantities of salt are made. The fishery here is also very considerable; and particularly great numbers of tunny-fish are catched, which are commonly from six to eight, and sometimes ten feet long. The neck of land which extends itself from the island, and quadrangular in some measure, is at first but very narrow; afterwards it becomes something broader, with several windings and angles, terminating at last in two headlands, the principal and most westerly of which is called St. Sebastiano.

The city of Cadiz is pretty large in circuit: yet all the large end of the neck of land is not built upon, and the delightful W. side, which is called *Sancto Campo* or the Church-court, is almost

uninhabited, the only building upon it being a spacious hospital, and two chapels, on account of its being not so commodious for the landing of vessels as the E. side.

Most of the streets of Cadiz are narrow, crooked, indifferently paved, and dirty: but some of them are broad, strait, and well-paved. The houses are generally between three and four stories high; nearly all of them have a quadrangular area, and several of these are very handsome. Here lodgings and provisions are in general dear. The city is in want of fresh-water: and in it are reckoned 13 convents; among which is also a Jesuits college, said to be the finest in all Andalusia; yet has but one parish-church, which is the cathedral; though the number of its ordinary inhabitants amounts to 40,000, and it contains about 5000 houses. Its Bishop is a suffragan to the Metropolitan of Seville. Here is the royal audience of the Indies, or the Indian board of trade, removed hither from Seville. Both before and after the arrival of the Spanish fleet from America, and their sailing from Cadiz thither again, this place is very brisk and stirring, from the great number of strangers, who come hither for the sake of trade. It is the center of all the American trade, to which port the English, French, Dutch, and Italian merchants send their goods, which Spanish factors, in their respective names, put on board the ships for America. Besides these just-mentioned, all others who trade by sea, have their agents, correspondents, and commissioners, at Cadiz; and the consuls and the aforesaid nations make a considerable figure here.

No people are happier than the trading sort in Cadiz; for they seldom risk any thing upon their own account, and enrich themselves at the cost of those who send them goods: let things go as they will, they are at no loss. What goods are sent from Spain itself to America are but very inconsiderable. The duty paid by foreign goods is uncommonly great; consequently the profits of the merchants and their agents are less than they might otherwise be, were they sufficiently acquainted with the methods of importing their goods duty-free. The harbour and bay of Cadiz is very fine and spacious; and for the defence of the entrance into it, is not only Fort Matagorda, but also Fort Punta, lying opposite to it upon a point of the neck of land on which Cadiz stands.

The Spaniards commonly call both these *Los Puntales*. Between them and the points of land on which the two forts stand, the entrance into the harbour, according to Labat, is about five hundred fathoms broad. At ebb-tide a great part of the harbour, which is said to be ten French leagues in circuit, lies dry. The outer and furthest bay, which begins between Rota and St. Sebastian, and which extends itself to Puerto de Santa Maria, is divided into two parts by the rocks *Los Pueros* and *Diamante*.

Cadiz is surrounded with walls and irregular battions, as the situation of the ground would admit of. There is no approaching to the S. side, on account of its high and steep shore. At present it is dangerous landing on the N. side, as here are sand-banks and rocks under water: but on the S. W. side there is a landing-place, at which stands a small fort called *St. Catalina*. Towards the S. W. point is a ridge of rocks, which at time of flood are partly covered with water. The outermost of these is a small island, upon which is a watch-tower and light-house, together with two chapels: as also Fort St. Sebastian stands there.

Cadiz lies 40 miles from Gibraltar. Lat. 36 deg. 30 min. N. Long. 6 deg. 40 min. W.

CADUCEUS, in antiquity, Mercury's rod, or sceptre, being a wand entwisted by two serpents, borne by him as the ensign of his quality and offices given him, according to the fable, by Apollo, for his seven-stringed harp.

CÆCELIA, in zoology, the name of a genus of serpents, the characters of which are these: the body is naked with wrinkled sides; the upper lip is prominent beyond the rest of the mouth, and has two tentacula; it has no tail.

Of this genus, authors enumerate several species, distinguished by the number of their rugæ or wrinkles.

CÆCUM, or **GOECUM**, in anatomy, the blind gut, or first of the thick intestines.

CÆSAR, in Roman antiquity, a title borne by all the emperors, from Julius Cæsar to the destruction of the empire. It was also used as a title of distinction, for the intended or presumptive heir of the empire, as king of the Romans is now used for that of the German empire. This title took its rise from the surname of the first emperor, C. Julius Cæsar, which, by a decree of the senate, all the succeeding emperors were to bear. Under

his successor, the appellation of *Augustus* being appropriated to the emperors, in compliment to that prince, the title of Cæsar was given to the second person in the empire, though still continued to be given to the first; and hence the difference betwixt Cæsar used simply, and Cæsar with the addition of *Imperator Augustus*.

CÆSARIAN SECTION, in midwifery, a chirurgical operation, by which the fetus is delivered from the womb when it cannot be done in the natural way.

CÆSTUS, in antiquity, a large gantlet made of raw hides, used by the wrestlers when they fought at the public games. This was a kind of leathern strap, strengthened with lead, or plates of iron, which encompassed the hand, the wrist, and a part of the arm, not only to defend those parts but to enforce their blows.

CÆSTUS, or **CÆSTUM**, a kind of girdle made of wool, which the husband untied for his spouse the first day of marriage, before they went to bed. This relates to Venus's girdle, which Juno borrowed to entice Jupiter to love her. See **CÆSTUS**.

CÆSURA, in the ancient poetry, is when, in the scanning of a verse, a word is divided so as one part seems cut off, and goes to a different foot from the rest.

CÆSURA, in the modern poetry, denotes a rest, or pause, towards the middle of an Alexandrine verse, by which the voice and pronunciation are aided, and the verse, as it were, divided into two hemistichs.

In Alexandrine verse of twelve or thirteen syllables, the cæsure must always be on the sixth; in those of ten, on the fourth; and in those of twelve, on the sixth: verses of eight syllables, must not have any cæsure.

CÆTERIS PARIBUS, a Latin term frequently used by mathematical and physical writers; the words literally signifying the rest, being alike, or equal. Thus we say, the heavier the bullet, *cæteris paribus*, the greater the rage; that is, by how much the bullet is heavier, if the length and diameter of the piece, and the quantity and strength of the powder be the same, by so much will the utmost range or distance of a piece of ordnance be greater.

Thus also, in a physical way, we say, the velocity and quantity of the blood circulating, in a given time, through any

any section of an artery, will, *ceteris paribus*, be according to its diameter, and nearness to, or distance from, the heart.

CAFFA, in commerce, painted cotton cloths manufactured in the East-Indies.

CAG, or KEG, or sturgeon, &c. a barrel or vessel that contains from four to five gallons.

CAIMACAN, or CAIMACAM, a dignity in the Ottoman empire, answering to lieutenant, or rather deputy among us.

* CAIRO, Grand, the capital of Egypt, in Africa. It is situated a mile from the river Nile, and extends eastward near two miles to the neighbouring mountain; it is about seven miles round, and was much larger than at present, when it was the center of trade in the East Indies, and walled round; part of the walls of free-stone, remaining to the North East of the castle, where they make an angle, turning from North to West: there are also some remains of them to the south of the castle, going towards the aqueduct: they are built with semicircular towers: there are likewise three or four grand gates that were built by the Marmalukes, the workmanship of which is very magnificent. One of them to the south is called Babel Zuile from a suburb of that name it leads to. Under the arch of the gate is a piece of a rope fastened to a hook, where Toman Bey, the last Marmaluke Sultan, was hanged by order of Sultan Selim. Another gate is Babel Nasser, through which Sultan Selim made his public entry. A little to the south of it is a gate still more magnificent, which is called Babel Futuh, that is, the gate of victory; it is of hewn stone, very high, and has a square tower on each side, the water tables of which are richly adorned with sculptures.

The canal that comes out of the Nile at Old Cairo, goes all through the city, though it is seen only from the back of the houses that are built on it; but when it is dry, it is a street, along which the common people frequently go. However, towards the time it begins to be dry, a stench arises from it that is very disagreeable. If one imagines that there are several squares or places about the city, from a quarter to three quarters of a mile round, contrived so as to receive and hold the water of the Nile that is conveyed to them by the canals; when the river rises, it may give some idea of the several lakes that are about the city during the

greater part of the year, round which the best houses in the city are built; and when the Nile is high in the summer, they are covered with fine boats and barges of all the great people, who come out in the evening to divert themselves with their ladies, where concerts of music are never wanting, and sometimes fire-works add to the amusement; all the houses round being in a manner illuminated, and the windows full of spectators to behold this splendid sight. The scene is much altered when the waters are gone off, and nothing but mud appears; but is soon succeeded by a more agreeable view of green corn, and afterwards of harvest.

The streets of Cairo, as of all the Turkish cities, are very narrow. Turkish houses, especially in Cairo, have very little beauty on the outside; they are generally built round a court, what they have of ornament being in their saloons within. There are several magnificent mosques in and about Cairo; but that which exceeds them all, both as to the solidity of its building, and a certain striking magnificence, is the mosque of Sultan Hassan, built at the foot of the castle-hill.

A part of the town to the S. is called Tailoun, founded by Tholoun, who was master of Egypt, in such a manner as to be almost independent of the Califfs. What remains of the ancient palace goes by the name of Kalatel-Kebbi. There are the remains of the castle walls, and high ground within them, raised by throwing out the dung of the city, and afterwards building on it, though to the W. there was a natural rock. In this wall is a sort of square turret, which they call the seat of Pharaoh; near it, under an arch, is an ancient Gtrophagus of black marble, which receives the water of a conduit. It is richly adorned both inside and out with hieroglyphics.

To the E. of Tailoun is the castle of Cairo, situated on a rocky hill, separated by art from the mountain Jebel Duise, which is the name of the E. end of Jebel Mocatham. There are two entrances to it on the N. side; one to the W. is called the gate of the Azaher; the other to the E. the gate of the Janizaries. The descent by the former is narrow, cut through the rock, and passing by two round towers near the gate, and then by a fine large, round tower: the way is by a high wall, on which, at a great height, is a relief of a very large spread eagle,

eagle, and so the entrance is opposite to the building that is called Joseph's hall. The ascent by the gate of the janizaries is more spacious and grand; on each side of the inner gate is a tower of many sides; and further on, at another entrance, is a large round tower on each side, opposite to the great mosque. At the W. of the castle are remains of very grand apartments, some of them covered with domes, and adorned with Mosaic pictures of trees and houses. This part of the castle is now only used for weaving, embroidering, and preparing the hangings and coverings they send every year to Mocca.

Over this is a higher ground to the East, near the grand saloon, commonly called Joseph's-hall, from which there is a most delightful prospect of Cairo, the pyramids, and all the country round. It lies 100 miles South of the mouth of the Nile, Lat. 30 deg. 15 min. N. Long. 32 deg. 12 min. E.

CAISSON, in military affairs, a wooden chest, into which several bombs are put and sometimes only filled with gunpowder; this is buried under some work whereof the enemy intend to possess themselves; and when they are masters of it, is fired, in order to blow them up.

CAISSON, a wooden frame, or chest, used in laying the foundations of the piers of a bridge.

CALABA, Indian mastich-tree, in botany, a genus of trees, it has a rosaceous flower, consisting of several petals, which are placed in circular order; from whose flower-cup arises the pointal, which afterwards becomes a spherical fleshy fruit, including a nut of the same form. This tree grows to a great magnitude in the warm parts of America, where it is a native. From the trunk and branches there issues out a clear gum, somewhat like the mastich, from whence it received its name; the gum being used in those countries as mastich.

At present this tree is pretty rare in England, it being so tender as not to bear the open air; so that it must be preserved in stoves, with the most tender exotic plants.

CALABASH-TREE, the same with the crescentia of Linnæus.

CALADE, in the manage, the descent or sloping declivity of a rising manège-ground, being a small eminence upon which we ride down a horse several times, putting him to a short gallop, with his fore hams in the air, to make him learn to ply or bend his haunches, and form his

stop upon the aids of the calves of the legs, the stay of the bridle, and the cavesson, seasonably given.

* **CALAIS**, a fortified town of France, in Lower Picardy, was began to be fortified in 1228, at which time a castle was built. In 1347, Edward III. of England took it by famine. The English kept it till January, 1558, when it was retaken by the duke of Guise. The situation of this place renders it more considerable than the number of its inhabitants, which are not above five thousand, and it has but one parish, and four convents. Hither the packet boats come from Dover in England twice a week, in times of peace. The figure of this place is an oblong square, and one of its longest sides is towards the sea. On the side of the country it is fortified with bastions, and a half moon, beyond which are ditches fifty yards wide, which may be filled with water at pleasure. The castle is as large as the town, and can only be entered by the bridge of St. Agatha. This likewise is surrounded with large deep ditches, full of sea water. The church, the town-house, and the convents are the only places worth seeing. There is a canal which runs from it to St. Omer, Gaveline, Dunkirk, Bruges, and Ypres. It is twenty-one miles south-east of Dover, twenty-five west of Dunkirk, fifty-five north of Abbeville, ninety south-east of London, and one hundred and fifty-two north of Paris. Long. 2. 6. E. Lat. 30. 58. N.

CALAMBA, or **CALAMBAC-WOOD**, the best of lignum-aloes.

CALAMANCO, a sort of woollen stuff manufactured in England and in Brabant. It has a fine gloss, and is chequered in the warp, whence the checks appear only on the right side. Some calamancoes are quite plain, others have broad stripes adorned with flowers; some with plain broad stripes, some with narrow stripes, and others watered.

CALAMIFEROUS, among botanists. See **CULMIFEROUS**.

CALAMINARIS, or **LAPIS CALAMINARIS**, in natural history, a mineral substance, of a greyish, brownish, yellowish, or pale reddish colour, and sometimes of all these colours variously mixed; considerably heavy, and moderately hard, but never sufficiently so as to strike fire with steel; when mixed with powdered charcoal, changing copper, by fusion, into a yellow metal called brass. It is found plentifully in England, Germany, and other countries, either in distinct mines, inter-

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Intermingled with the ores of lead or other metals. This ore of zinc, employed principally for the making of brass, is for that purpose roasted or calcined, partly with a view to dissipate some sulphureous matter, which the crude mineral is supposed to contain; but chiefly to render it friable, and more easily reducible into fine powder. It is with the ore thus calcined, that the shops are generally supplied: where this cannot be procured, the mineral is heated to a strong red heat, then quenched in water, and this process repeated thrice. The roasted calamine is levigated into an impalpable powder, which may be freed from the grosser particles by washing it over with water. In this state it proves, for external purposes, an excellent restringent, desiccative, and epulotic; of great use in collyria, against effusions of thin acrid humours upon the eyes; and in unguents and cefates, for cutaneous ulcerations and excoriations. The officinal epulotic cerate, commonly called Turner's, is made by melting six ounces of yellow wax in a pint of oil olive, over a gentle fire, sprinkling in six ounces of levigated calamine as soon as the mixture begins to grow stiff, and keeping the whole stirring till grown quite cold. The college of Edinburgh diminishes the proportion of the calamine, using only five ounces and a quarter to a pint of oil, with nine ounces of wax.

CALAMINT, *Calamintha*, in botany, a distinct genus of plants, which is perennial, and flowers in June and July. There are three species of this plant used in medicine; namely.

1. Calamint, with reclining stalks; small irregularly oval leaves, very slightly indented, without pedicles; and the flower stalks longer than the leaves. This species grows wild in dry grounds, and by the sides of fields.

2. Common Calamint, with upright stalks; larger, short, serrated, pointed leaves, set on pedicles; and the flower stalks of the length of the leaves. It is found wild about the sides of highways, but is less common in this country than the other.

This species is supposed to agree in virtue, and has been used indiscriminately with the former; shops being generally supplied with the species which is most easily procurable.

3. Mountain Calamint, with larger leaves and flowers than the two preceding, but smaller stalks; the leaves set on pedicles, pointed, acutely and deeply serrated

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like those of nettles; the flower stalks shorter than the leaves, and of the length of the flowers themselves. It is a native of the southern parts of Europe, and raised with us in gardens.

This species has a moderately pungent taste, and a more agreeable aromatic smell than either of the other calamins. It appears to be the most eligible of the three as a stomachic.

CALAMUS AROMATICUS, or, **ACORUS VERUS**, in the materia medica, is the root of a kind of flag growing in marshy places in some parts of Europe: it is pretty long, full of joints, of a whitish, reddish, and partly of a greenish colour on the outside, white and spongy within, easy to break, of a strong aromatic smell, and a warm pungent taste. In firm grounds, it spreads into many slender strings, which in mere watery ones it does not.

CALAMUS SCRIPTORIUS, in anatomy, a dilatation of the fourth ventricle of the brain; so called from its figure, which resembles that of a goose-quill.

CALOSH, or **CALESH**, a light low kind of chariot, used chiefly for taking the air in parks and gardens.

Knights of CALATRAVA, a military order in Spain, instituted under Sancho III. king of Castile. The knights of Calatrava bear a cross gules, surmounted with green, &c. their rule and habit was originally that of the Cisternians.

CALCANEUM, or **OS CALCIS**, in anatomy, the bone lying under the astragalus, to which, and the os cuboides, it is articulated. Its apophysis behind serves to prevent our falling backwards, and on its posterior surface is inserted the tendo achillis; in its interior side there is an excavation, intended to give safe passage to the vessels running to the metatarsus and toes.

CALCAR, in anatomy, the same with calcaneum. See **CALCANEUM**.

CALCAR, in glass-making, a sort of oven, or reverberatory furnace, in which being well heated, the chrysal frit, or bostito is made.

CALCARIOUS, something belonging to, or partaking of, the nature of calx. See **CALX**.

CALCARIOUS LAPIS, in natural history, the same with lime-stone. See **LIME**.

CALCEDON, among jewellers, a flaw or foul vein, like chalcedony, found in some precious stones.

CAL-

CALCEDONY, or **CHALCEDONY**, in the history of precious stones. See **CHALCEDONY**.

CALCINATION, in chemistry, the separating, by means of heat, or fire, the more fixed from the volatile parts of any compound body.

Calcination has, by some, been very improperly called chemical pulverization, as if the whole intention consisted in reducing bodies to powder by means of heat: but this is a great mistake: for though the destruction or diminution of the tenacity is often the consequence, and sometimes, perhaps, the intentional end of calcination; yet it is in many cases otherwise; since lapis calaminaris and other bodies, after they have suffered what is every where called calcination, are yet very far from the condition of the powder; and if the making bodies fit, by means of fire, to undergo pulverization, alone constituted calcination; then that kind of excitation which is employed on rhubarb, and called torrifying, would of course come within the meaning of the term, contrary to the universal use of the word.

There are several species of calcination which differs in regard to the effect with which the fire is suffered to operate on the calcined matter. Calcination may therefore be divided into perfect, or where the utmost change, except vitrification, which can be effected by heat, is brought about; and imperfect, where the degree of heat is limited, and only a part of the alteration it is capable of producing is suffered.

CALCULATION, the act of computing several sums, by adding, subtracting, multiplying, or dividing. See the articles **ARITHMETIC**, **ADDITION**, **NUMERATION**, **MULTIPLICATION**, &c.

CALCULATION, is more particularly used to signify the computations in astronomy and geometry, for making tables of logarithms, ephemerides, finding the time of eclipses, &c.

CALCULUS, in natural history, a little stone or pebble. See **PEBBLE**.

CALCULUS, or **CALCULUS HUMANUS**, in medicine, the stone in the bladder or kidneys. See **STONE**.

CALEFACTION, the production of heat in a body from the action of fire, or that impulse impressed by a hot body upon other bodies about it. This word is used in pharmacy, by way of distinction from coction, which implies boiling; whereas calefaction is only heating a thing.

CALENDAR, *Calendarium*, a distribution of time, accommodated to the various

uses of life, in which sense it differs nothing from the modern almanacs. See **ALMANAC**.

The first calendar was made by Romulus, who divided the year into ten months only, beginning on the first day of March, and containing three hundred and four days, in which time he imagined the sun performed his course through all the seasons.

This calendar was reformed by Numa Pompilius, who added two months more, viz. January and February, placing them before March. His year began on the first of January, and consisted of three hundred and sixty-five days. This was afterwards improved by Julius Caesar, and was by him called the Julian account, which reduced the year to three hundred and sixty-five days, six hours; and was retained in most protestant countries, and in our nation till the year 1752. This year is disposed in quadriennial periods, whereof the three first years, which were called common, consisted of three hundred and sixty-five days, and the fourth, bissextile, of three hundred and sixty-six. See **BISSEXTILE**.

The Julian account was afterwards corrected by pope Gregory XIII. which on that account obtained the name of the Gregorian calendar, or new-style; the Julian being called the old-style: and though the Gregorian calendar be preferable to the Julian, yet it is not without its defects: perhaps, as Tycho Brahe and Cassini imagine, it is impossible ever to bring the year to a perfect justness.

Julian Christian CALENDAR, that wherein the days of the week are determined by the letters A, B, C, D, E, F, G, by means of the solar cycle, and the new and full moons, especially the Paschal full moon, which is the feast of Easter, and the other moveable feasts depending thereon, by means of golden numbers rightly disposed through the Julian year. See **GOLDEN NUMBER**.

Gregorian CALENDAR, that which, by means of epacts rightly disposed through the several months, determines the new and full moons, and the time of Easter, with the moveable feasts depending thereon, in the Gregorian year. See **EPACT**.

Reformed, or corrected CALENDAR, that which setting aside golden numbers, epacts, and dominical letters, determines the equinox, with the Paschal full moon, and the moveable feasts depending thereon, by astronomical computations, according to the Rudolphine tables. This calendar

was introduced among the protestant states of Germany in the year 1700, when eleven days were at once, thrown out of the month of February, by which means the corrected style agrees with the Gregorian.

CALENDER, a machine used in manufactories, to press certain woollen and silken stuffs, and linens, to make them smooth, and glossy, or to give them waves, and water them, as may be seen, in mohairs and tabbies. This instrument is composed of two thick cylinders, or rollers, of very hard polished wood, round which the stuffs, to be calendered, are wound: these rollers, are placed crosswise, between two very thick boards, the lower serving as a fixed base, and the upper moveable, by means of a thick screw, with a rope fastened to a spindle, and makes its axis: the uppermost board is loaded with large stones cemented together, weighing twenty thousand pounds, or more. It is this weight that gives the polish, and makes the wave on the stuffs about the roller, by means of a shallow indenture or engraving cut in it.

CALENDS, *Calende*, in Roman antiquity, the first day of each month, so called from the Greek; it being customary on those days to proclaim the number of holy-days in each month.

The Roman method of reckoning the days of their months has something extremely singular in it; instead of computing forwards, in the natural order of the numbers 1, 2, 3, &c. they reckoned backwards.

Hence to find the day of our month, answering to that of the calends, to the number of days in the preceding month add two, and from this sum subtracting the number of calends given, the remainder will be the day of our month: thus the fourth of the calends of June is found to answer to the twenty-ninth of May; and so in other cases.

CALENDULA, *mary-gold*, in botany, a genus of plants, which is annual, and common in gardens, propagates itself by seeds, and flowery from May to the end of autumn.

Marygold flowers have been recommended as aperients to uterine obstructions and isteric disorders; as sudorifics, alexipharmics, and for promoting eruption in malignant and exanthematous fevers.

The leaves of the plant appear to be of greater virtue than the flowers. Their expressed juice, which contains great part

of the pungent matter of the herb, has been given in doses of two or three ounces or more, as an aperient; and is said to loosen the belly, and promote the natural secretions in general. See **MARYGOLD**.

CALENTURE, *Calentura*, in medicine, a feverish disorder incident to sailors in hot climates; the principal symptom of which is, their imagining the sea to be green-fields: hence, attempting to walk abroad in these imaginary places of delight, they are frequently lost.

Vomiting, bleeding, a spare diet, and the neutral salts, are recommended in this disorder; a single vomit commonly removing the delirium, and the cooling medicines completing the cure.

CALF, *Vitulus*, in zoology, the young of the ox kind.

Among sportsmen, the term calf is used for a hart or hind of the first year. The same term is used for the young of the whale.

There are two ways of breeding calves, one, when they are allowed to suck their dams all the year round, chiefly used in countries where pasture is cheap; and the other, when being taken from their dams after sucking a fortnight, they are taught to drink milk, or milk and water, out of a tub. The former, however, of these methods is allowed to make the best cattle.

CALIBER, or **CALIPER**, properly denotes the diameter of any body: thus we say, two columns of the same caliber, the caliber of a bore of a gun, the caliber of a bullet, &c.

CALIBER-COMPASSSES, an instrument, made either of wood, iron, steel, or brass: that used for measuring bullets consists of two branches, bending inwards, with a tongue fixed to one of them, and the other graduated in such a manner, that if the bullet be compressed by the ends of the two branches, and the tongue be applied to the graduated branch, it will shew the weight of the bullet.

CALIBER, is also an instrument used by carpenters, joiners, and bricklayers, to see whether their work be well squared.

CALIPH, the supreme ecclesiastical dignity among the Saracens; or, as it is otherwise defined, a sovereign dignity among the Mahometans, vested with absolute authority in all matters relating both to religion and policy.

The Saracen princes assumed this title as descendants from Mahomet; the caliphs bearing the same relation to Mahomet, that the popes pretend they do to Jesus Christ, or St. Peter. It is at this day one

of the grand Seigneur's titles, as successor of Mahomet; and of the sophi of Persia, as successor of Ali.

CALIXTINS, a name given to those, among the Lutherans, who follow the sentiments of George Calixtus; a celebrated divine, who opposed the opinion of St. Augustine, on predestination, grace, and free-will.

CALICO, or **CALLICO**, a kind of manufacture, made of cotton, chiefly in the East Indies. There is a great trade in the province of Bengal, in this commodity, which is transported in prodigious quantities into Persia, Turkey, Arabia, Muscovy, and all over Europe. Some of them are painted with flowers of various colours; and the women in the Indies make veils and scarfs of them, and, of some, coverlets for beds, and handkerchiefs. They make another sort of this manufacture, which they never dye, and hath a stripe of gold and silver quite through the piece, and at each end, from the breadth of one inch to twelve or fifteen, they fix a tissue of gold, silver, and silk, intermixed with flowers; both sides alike. Brampour, Secongce, and Barocke are the places most famous for the cotton manufacture.

CALICO-Printing, the art of staining calicoes, of various colours. See **LINEN Printing**.

CALLING the House, in the British parliament, is the calling over all the members names, every one answering to his own, and going out of the house, in the order in which he is called; this they do in order to discover whether there be any persons there not returned by the clerk of the crown; or if any member be absent without leave of the house.

* **CALLIRHOE**, in fabulous history, the daughter of the river Achelous, and wife of Alcmeon who killed his mother Fyphile. She married him when he had another wife living, to whom he had given a famous gold neck-lace. Callirhoe having heard of this, declared she would not lie any more with him, if he did not make her a present of it. Upon which, Alcmeon going to Phegeus, his other wife's father, and telling him that the oracle had declared, that he would never be cured of his frenzy, if he did not offer the neck-lace in the temple at Delphi, Phegeus gave it him; but being soon after informed that it was designed for Callirhoe, he commanded his two sons to murder Alcmeon, which they did accord-

ingly. Jupiter enjoying Callirhoe, she, in order to revenge her husband, begged that her children by Alcmeon, who were still very young, might become in a moment full grown men. Her petition was granted; and immediately her two sons, at her desire, set out, and meeting on the road the two murderers, who were going to offer the neck-lace at Delphi, killed them, and afterwards going to Phegeus, killed him and his spouse. Callirhoe after this, dedicated the neck-lace to Apollo.

* **CALISTA**, in fabulous history, the daughter of Lycæon, king of Arcadia, and one of the nymphs of Diana, who, being beloved by Jupiter, that god assumed the form of the goddess of Chastity, by which means he debauched her; but her disgrace being revealed, as she was bathing with her patroness, the incensed deity not only disgraced her, but turned her and the son, with which she was pregnant, into bears, when Jupiter, in compassion to her sufferings, took them up into the heavens, and made them the constellations *Ursa Major* and *Ursa Minor*.

* **CALLIOPE**, in the pagan mythology, the muse presiding over eloquence and heroic poetry. She was thus called from the sweetness of her voice, and was reckoned the first of the nine sisters.

This goddess was represented by the ancients as a beautiful young virgin, crowned with flowers, and holding in her hand the *Odysey*, the *Iliad*, and the *Aeneid*.

CALLOUS, *Callosus*, something partaking the nature of a callus.

CALLOSUM CORPUS, in anatomy, a whitish hard substance, joining the two hemispheres of the brain, and appears in view when the two hemispheres are drawn back. See **BRAIN**.

CALLUS, or **CALLOSITY**, in a general sense; any cutaneous, corneous, or osseous hardness, whether natural or preternatural: but most frequently it means the callus generated about the edges of a fracture, provided by nature to preserve the fractured bones; or divided parts, in the situation in which they are replaced by the surgeon.

A callus, in this last sense, is a sort of jelly, or liquid viscous matter, that sweats out from the small arteries and bony fibres of the divided parts, and fills up the chinks, or cavities, between them. It first appears of a cortilaginous substance, but at length becomes quite bony, and joins

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Joins the fractured part so firmly together, that the limb will often make greater resistance to any external violence with this part, than with those which were never broken.

CALLUS is also a hard, dense, insensible knob, rising on the hands, feet, &c. by much friction and pressure against hard bodies.

CALOMEL, in the materia medica, a name given to mercurius dulcis, sublimated six times.

It is a gentle purgative, and a very noble attenuant. It is the greatest of all medicines against worms, and is now the general remedy in a gonorrhoea. The common method of giving it is in a bolus, over night, ten or twelve grains for a dose, and a purging draught the next morning, &c. Rubbed with an equal quantity of sulphur antimoniæ autatum, it is recommended as a powerful and safe alterative.

CALQUING, or **CALKING**, a term used in painting, &c. where the backside of any thing is covered with a black or red colour, and the strokes or lines traced through, on a waxed plate, wall, or other matter, by passing lightly over each stroke of the design with a point, which leaves an impression of the colour on the plate or wall.

CALTHA, marsh-marygold, in botany, a genus of plants.

CALTROP, in military affairs, an instrument with four iron points, disposed in a triangular form, so that three of them are always on the ground, and the fourth in the air. They are scattered over the ground where the enemy's cavalry is to pass, in order to embarrass them.

CALTROP, in botany, the English name of the tribulus. See **TRIBULUS**.

CALVARIA, in anatomy, the hairy scalp or upper part of the head, which, either by disease, or old age, grows bald first. See **HEAD** and **CALVITIES**.

CALVINISTS, those who follow the opinions of John Calvin, one of the principal reformers of the church in the sixteenth century; he was a person of great parts and industry, and of considerable learning; whose doctrine still subsists in its greatest purity at Geneva, where it was first broached, and from whence it was propagated. He died at Geneva, May 27, 1544, aged forty-five. This is the prevailing religion of the United Provinces. In England it is confined among the dissenters; and in Scotland, it subsists in its utmost vigour.

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The Calvinists are great advocates for the absoluteness of God's decrees; and hold that election and reprobation depend on the mere will of God, without any regard to the merit or demerit of mankind; that he affords to the elect an irresistible grace; a faith that cannot lose, which takes away the freedom of will, and necessitates all their actions to virtue. The Calvinists believe that God fore-knew a determinate number, whom he pitched upon to be persons, in whom he would manifest his glory; and that having thus fore-known them, he predestinated them to be holy, in order to which he gives them an irresistible grace, which makes it impossible for them to be otherwise. Strange doctrine!

CALVITIES, or **CALVITIUM**, in medicine, baldness, or a want of hair; particularly on the sciniput, occasioned by the moisture of the head, which should feed it, being dried up, by some disease; old age, or the immoderate use of powder, &c. See **ALOPECIA**.

CALUMET, a symbol of peace among the Indians in the north of America. It is made of a red stone, like our marble; the head resembles our tobacco-pipes; but larger; and is fixed on a hollow reed, to hold it for smoking: they adorn it with fine wings of several colours, and is the calumet of the sun, to whom they present it, especially if they want fair weather, or rain. This pipe is a pass and safe-conduct amongst all the allies of the nation who has it given, in all embassies the ambassador carries it as an emblem of peace, and it always meet with a profound regard; for the savages are generally persuaded, that a great misfortune would befall them, if they violated the public faith of the calumet.

CALX, properly signifies lime, but is also used by chemists and physicians for a fine powder remaining after the calcination or corrosion of metals, and other mineral substances. See **CALCINATION** and **LIME**.

* **CALYPSO**, in fabulous history, a goddess, who was the daughter of Oceanus and Tethys, or, as some say, of Atlas. She was queen of the island of Ogygia, which from her was called the island of Calypso. According to Homer, Ulysses suffered shipwreck on her coast, and staid with her several years.

CALYX, among botanists, a general term expressing the cup of a flower, or that part of a plant which surrounds and supports the other parts of the flower.

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The cups of flowers are very various in their structure, and on that account distinguished by several names, as perianthium, involucreum, spatha, gluma, &c. See **PURIANTHIUM**.

CAMEA, in natural history, a genus of the semipellucid gems. One species of the cama is the dull looking onyx, with broad black and white zones; and is the cama of the moderns, and the Arabian onyx: this species is found in Egypt, Arabia, Persia, and the East-Indies. Another species of the cama is the dull, broad-zoned, green and white cama, or the jaspé-cameo of the Italians: it is found in the East-Indies, and in some parts of America. The third is the hard cama, with broad white and chestnut-coloured veins; and the fourth the hard cama, with bluish, white, and flesh-coloured broad veins, being the sardonius of Pliny's time, only brought from the East-Indies.

CAMAIU is also a term in painting, when there is only one colour, the lights and shades being of gold, or on a golden and azure ground. It is chiefly used to represent basso relievos.

CAMALDULIANS, a religious order founded by St. Romauld, in a little plain on the Mount Apennine, called Camaldali, situated in the state of Florence. The manner of life first enjoined this order, was, that they dwelt in separate cells, and met together at the time of prayer, some of them, during the two lents of the year, observed an inviolable silence; and others, for the space of an hundred days. On Sundays and Thursdays they fed on herbs, and the rest of the week only on bread and water. These constitutions were, however, a little moderated sometime afterwards. This hermitage is now accounted very rich.

CAMBLET, or **CAMLET**, a plain stuff, composed of a warp and wool manufactured on a loom, with two treddles, as linens are. There are camblets of several sorts, some of goats hair, both in the warp and wool; others in which the warp is of hair, and the wool half hair and half silk; others again, in which both the warp and the wool are of wool; and lastly, some, of which the warp is of wool and the wool of thread. Some are dyed in the thread, others are dyed in the piece, others are marked and mixed; some are striped, some waved or watered, and some figured. Camblets are proper for several uses according to their different kinds and qualities; some serve to make garments both for men and

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women; some for bed curtains; others for household furniture, &c.

* **CAMBRIDGE**, the capital of the county of Cambridge, situated on the river Cam, 52 miles north-east of London, and 80 east-north-east of Oxford. It is most considerable for its University, which is very ancient, founded probably during the heptarchy, soon after christianity became the religion of this part of the island. There are at present in Cambridge, 16 colleges, 14 parishes, about 1300 students of all sorts, and about 6000 inhabitants in the town. The town and university each send two members to parliament. The duke of Grafton is the present chancellor of the university.

CAMEL, *Camelus*, in zoology, a genus of quadrupeds, of the order of the pecora; distinguished from the rest by having no horns. This genus comprehends the camel, properly so called, with two bunches on its back; the dromedary, or camel, with a single bunch; the glava, or Peruvian camel, with a gibbous breast and even back; and the paco, or camel, with no gibbosity at all.

The camel is larger than the dromedary, and covered with a fine fur, shorter as well as softer than that of the ox kind; about the bunches there grow hairs nearly a foot long. It is a native of Asia, particularly of Bactria, and makes an excellent beast of burden.

CAMLEON, in zoology. See **CHAMELEON**.

CAMELOPARDELIS, in zoology, a creature of the deer kind. See **ZURNAPA**.

CAMERA OBSCURA, in optics, a machine for exhibiting the picture of a landscape, &c. in its natural colours. The camera obscura, or darkened chamber, is made after two different methods; one is the camera obscura, or darkened chamber at large; that is, any large room or chamber made as dark as possible, so as to exclude the light in every part except a small circular hole in the window shutter, where a lens fixed in a ball is placed. The other camera obscura is small; and thence often called a portable camera obscura, from its being carried from place to place, for taking a perspective view of any proposed place or part of the country.

CAMERATED, among builders, the same with vaulted or arched.

CAMERONIANS, a party of presbyterians, who sprung up in Scotland, in the reign of Charles II. They affirmed that the king had forfeited his right to the crown,

crown, by breaking the solemn league and covenant, which were the terms on which he received it. They pretended both to dethrone and excommunicate him; and broke out into an open rebellion. Upon the Revolution, they were reconciled to the kirk, and their preachers submitted to the general assembly of the church of Scotland, in 1690.

CAMISADE, in the art of war, an attack of surprize in the night, or at the break of day, when the enemy is supposed to be a-bed.

CAMLET. See **CAMULET**.

CAMOLILE. See the article **CHAMMELUL**.

CAMP, the ground upon which an army pitch their tents. It is marked out by the quarter-master-general, who appoints every regiment their ground.

The chief advantages to be observed in choosing a camp for an army, are to have it near the water, in a country of forage, where the soldiers may find wood for dressing their victuals; that it have a free communication with garrisons, and with a country from whence it may be supplied with provisions; and, if possible, that it be situated on a rising ground in a dry gravelly soil. Besides, the advantages of the ground ought to be considered, as marshes, wood, rivers, and inclosures; and if the camp be near the enemy, with no river or marsh to cover it, the army ought to be intrenched. An army always encamps fronting the enemy; and generally in two lines, running parallel about five hundred yards distance, the horse and dragoons on the wings, and the foot in the center; sometimes a body of two, three, or four brigades is encamped behind the two lines, and is called the body of reserve. The artillery and bread waggons are generally encamped in the rear of the two lines. A battalion of foot is allowed eighty or an hundred paces for its camp; and thirty or forty for an interval betwixt one battalion and another. A squadron of horse is allowed thirty for its camp and thirty for an interval, and more if the ground will allow it.

Flying CAMP, the ground on which a flying army is encamped.

CAMPAIGN, in the art of war, the space of time that an army keeps the field, or is encamped. Concerning the healthiness of the different seasons of a campaign, Dr. Pringle has the following observations: the first fortnight or three weeks is always sickly, after which the sickness decreases, and the men enjoy a tolerable state of

health throughout the summer, unless they get wet cloaths. The most sickly part of the campaign is towards the end of August, while the days are still hot, but the nights cold and damp, with fogs, and dews; then, if not sooner, the dysentery prevails; and though its violence is over by the beginning of October, yet the remitting fever gaining ground, continues throughout the rest of the campaign, and never entirely ceases, even in winter quarters, till the frosts begin. He likewise observes, that the last fortnight of a campaign, if protracted till the beginning of November, is attended with more sickness, than the two first months of the encampment; so that it is better to take the field a fortnight sooner, in order to return into winter-quarters so much the earlier. As to winter expeditions, though severe in appearance, he tells us, they are attended with little sickness if the men have strong shoes, warm quarters, fuel, and provisions enough.

CAMPANIFORM, or **CAMPANULATED**, an appellation given to flowers resembling a bell.

Of campaniform flowers, we meet with four varieties: 1. The bell-flower, properly so called. 2. The oblong or tubular bell-flower. 3. The bell-flower expanded to a great width at the mouth, and consequently resembling a basin. 4. The globular, or roundish bell-flower; the mouth of which is narrower than its belly.

CAMPANULA, bell-flower, in botany, a genus of plants, the flower of which consists of a campanulated single petal.

CAMPEACHY WOOD, *Campeche*, in botany, the same with the *hamatovylum* of Linnaeus, otherwise called *log-wood*. It is brought to us in large and thick blocks or logs, and is the heart only of the tree which produces it. It is very heavy, and remarkably hard. It is not easily cut, but it splits pretty readily in a longitudinal direction. Campeachy wood must be chosen in large and thick pieces, sound, and of a deep red colour. It has been long known among the dyers; but it is only of late that it has been introduced into medicine. It is found to be an excellent astringent, and is given in form of an extract, in diarrheas, with very great success.

CAMPHOR, in the materia medica, a body of a particular nature, being a mixed substance, dry, white, transparent and brittle, and of a very penetrating smell.

There are many Indian plants from which camphors are obtainable, but only two which afford any large quantity, and from

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from which this commodity is commonly prepared, one growing in Samatra and Borneo, and the other in Japan, as particularly about Satsuma. The camphor of the Japan species is the only sort kept in the shops, the other being never brought into Europe. This tree is about the size of a large holly. All the parts of it are impregnated with camphor, but the roots contain most; hence the root is chiefly made use of for the preparation of this commodity; though in want of sufficient quantities of these, the wood and leaves are mixed.

The rough camphor, as extracted by distillation, looks much like the grey, small-crystallised East-Indian salt-petre, or like common bay-salt: in this state, it is imported in casks into Europe, particularly into Holland, and there purified or refined.

The refining of camphor was formerly one of the manufactures of Venice, the Venetian; being then the only people in Europe who traded directly to the East-Indies; but that trade has long ago passed into other hands; the Venetians now import little or no camphor, and the art of refining it is known only to the Dutch. The English and French import some rough camphor, but send it to Amsterdam to be refined, having never been able to succeed in the process themselves. Pure camphor is a dry, colourless, transparent mass, in appearance resembling a salt, so light as to swim on water, moderately compact, yet easy to break, though not reducible by itself into fine powder, soft, and as it were saponaceous to the touch: when rubbed betwixt the fingers, of a strong penetrating smell, and an acid aromatic taste, very easily inflammable, and so volatile as to exhale totally in a warm air. The only method of preserving camphor is, to keep it in a cool place secured from the air: if tied in papers or bladders, then put into leaden or tin casks, or glass or earthen vessels, and set in a cool cellar, we need not be afraid of losing a single grain in many years. Camphor, considered as a medicine, is a very warm diaphoretic and antiseptic: it does not however heat the constitution so much as might be expected from its hot pungent taste. Camphor is employed likewise in fire-works, and in sundry other arts, particularly for varnishes. Camphorated varnishes excellently preserve both animal and vegetable bodies, and peculiarly resist worms and other insects. Camphor, in substance, also laid among clothes, preserves them from moths.

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The principal preparations of camphor are, camphorated spirit of wine, and an oil of camphor. The camphorated spirit is no other than a solution of camphor in rectified spirit.

There are sundry oils of camphor prepared by distillation. One is made by distilling camphor from red bole or other loamy earths, and repeating the distillation from a fresh parcel of the earth, till the whole of the camphor is changed into an oil.

Another oil of camphor is prepared by digesting one part of camphor with four parts of oil of turpentine, and then distilling them. A third oil of camphor is made from camphor and Venice soap, by distillation and cohobation: this is called by some *oleum camphoræ arbuticum*. All the three have somewhat of an empyreumatic odour; and, considered as medicines, are of little or no consequence. Camphor is one of those drugs which art cannot improve, either for medicinal or mechanic uses, and which are therefore to be given in their entire substance, or unchanged in their composition. All the assistance that the physician can in this case expect from the chemist, is, to discover the most commodious means of fitting the subject for exhibition. For reducing camphor into powder, and thus fitting it for such forms as receive powdery ingredients, it should be moistened with a few drops of rectified spirit of wine, which will render it easily pulverable. The best way of obtaining a watery solution of camphor is to grind it with almonds, in the proportion of about four scruples of almonds to half a dram of camphor: by this means the whole of the camphor will be rendered soluble in water into the form of an emulsion. By agitating, and grinding it with the yolk of an egg, or mucilage, it becomes likewise miscible with water: the yolk of one egg is sufficient for about two scruples of camphor. *Neumann's Chemistry.*

Camphor has various uses in fire-works, varnishes, and medicine. In the last it is at present in high repute, especially in all inflammatory, putrid, pestilential, and maniacal diseases. It is also given with advantage at the close of the venereal distemper, mixed with the balsams, or fine turpentine.

CAMBION, in botany, a name sometimes given to the lychnis. See the article **LYCHNIS**.

* **CANADA**, or the province of Quebec, an extensive country in North America,

ice, bounded on the north-east by the gulph of St. Lawrence and St. John's river; on the south-west by lands inhabited by the Indians; on the south by the provinces of Nova Scotia, New England, and New York; and on the north-west by lands claimed by the Indians; extending about five hundred miles in length and two hundred miles in breadth. The French, under the name of Canada, comprehended a much larger territory, taking into their claim great part of the New England provinces, and of those of Nova Scotia and New York, and extending it northward to Hudson's bay; to the west as far as the pacific ocean; and to the southward to the gulph of Mexico. The climate is cold, and the winters long and very severe, especially in the north parts of the province. The rivers are soon frozen up, and the ice is frequently six feet thick. Yet the soil is in general very good, and in many parts both pleasant and fertile, producing most kinds of English grain and vegetables in abundance, and there are vast forests of tall trees, as oaks, pines, cedars of several kinds, wild vines, and animals peculiar to North America, particularly the beaver. The summers of Canada are exceeding pleasant, and we are told, have so happy an effect upon the soil, that the farmer usually reaps his corn in sixteen weeks from the time of sowing the seed. The meadow grounds, which are well watered, yield excellent grass, and breed vast quantities of large and small cattle. It affords very fine timber, and the mountains abound with coals. It is remarkable for its rivers, the principal of which is that of St. Lawrence, and for its lakes, which are of a prodigious size. Great Britain conquered this country from France in the last war, and was secured in the possession of it by the late treaty of peace, by which the popish inhabitants are justly allowed liberty of conscience and a popish bishop. The principal towns of Canada are Quebec, Montreal, Les Trois Rivières, and Tadoussack.

CANAL, *Canalis*, in hydrography, a sort of artificial river, made for the convenience of water-carriage.

Several of the kings of Egypt endeavored to join the Red-sea to the Mediterranean, by a canal opened from the Red-sea to one of the arms of the Nile, which discharges itself into the Mediterranean; and the Turkish emperor Solymann II. employed one hundred and fifty thousand men upon this business to no purpose.

There are several large canals in France, particularly that of Briere, begun under Henry IV. and finished under Lewis XIII. and that of Languedoc, proposed under Francis I. but not finished till the time of Lewis XIV.

CANAL, in anatomy, a duct or passage through which any of the juices flows. 1. The semi-circular canals, distinguished by the epithets of the largest, the middle one, and the least, in the labyrinth of the ear, opening by five orifices into the vestibule. 2. The canals of the auditory nerve. 3. The canals arteriales. 4. The nasal canals. 5. The canals lacrimales. And 6. The canals venosæ. See *FORRUS*, *NOS*, &c.

CANARY-BIRD, *Passer Canariensis*, the English name of the whitish fringilla, with the wings and tail greenish.

Canary birds are natives of the Canary Islands, whence they have their name; but the melody of their voice is so sweet, that there are but few nations in Europe which do not keep them in cages, where they very readily breed.

CANCER, the crab, in zoology, one of the divisions of scutilla, comprehending all those with short tails. See *SCUTILLA*.

Crabs are a well-known shell-fish, of which there are a great many species; as the common large crab, the spider-crab, the Molucca-crab or king-crab, the little woolly-crab, the prickly long-armed-crab, &c.

CANCER, in surgery, a roundish unequal hard livid tumour, generally seated in the glandulous parts of the body, and at length appearing with turgid veins, shooting out from it so as to resemble, as it is thought, the figure of the crab-fish, or, as others say, because like that fish, when once it has got hold, it is scarcely possible to drive it away.

Cancerous, or scirrhus tumours, often appear spontaneously without any evident cause, and seem peculiar to certain constitutions; others, they may be accidental, or proceed from sharp corrosive or other coagulating juices in the body, errors in the non-naturals, a stoppage of the necessary evacuations, contractions, stagnations, or coagulation of the milk in the breasts, &c. The immediate cause of a cancer seems to be a too corrosive volatile salt, approaching to the nature of arsenic, formed by the stagnation of humors, &c. Stollerforth observes, that it has been frequently cured by mercury and salivation. Some take an ulcerous cancer to be nothing.

thing else but an infinite number of little worms, which devour the flesh by degrees. The cancer is allowed to be the most terrible evil that befalls the body; it is usually cured while yet a small tumour of the bigness of a nut, or at most a small egg, by extirpation; when it seizes the breast, or it bursts into an ulcer, amputation takes place. It begins without any pain, and appears at first like a chicory-pea, but grows apace, and becomes very painful. The cancer arises principally on the lax and glandulous parts, as the breasts and counsellories: it is the most frequent in women, especially such, says Stokerforth, as are barren, or live in celibacy. The reason of its appearing in the breast, more than other parts, is, they being full of glands, with lymphatics and blood vessels among them, the smallest contusion, compression, or puncture, extravasates those liquors, which grow by degrees acrimonious from the cancers. Hence the masters of the art say, that a cancer is that in the glands, which a caries is in the bones, and a gangrene in the fleshy part.

The cancer is, however, found in other soft spongy parts of the body; and there have been some found in the gums, belly, neck of the matrix, wreters, lips, nose, cheeks, abdomen, thighs, and even the shoulders, as Stokerforth proves. A cancer arising on the leg is called a lupus, or on the face or nose, a noli me tangere. Cancers are divided, according to the several stages, into occult and open, or ulcerated: occult cancers are those not arrived at their state, nor yet burst; ulcerated cancers are known by their roughness and fulness of holes, through which oozes a filthy stinking glutinous matter, frequently yellowish; by their pungent pain, which resembles the pricking of pins; by their blackness, the swelling of the lips of the ulcer, and the veins about it, which are blackish, tumid, and varicose; sometimes the extremities of the blood-vessels are gnawed off, and the blood issues out; in a cancer of the breast the adjacent flesh is sometimes so consumed, that one may see into the cavity of the thorax; it occasions a slow fever, a loathing, oftentimes faintings, sometimes a dropy, and lastly death. Some cancerous tumours are moveable, others fixed; some inflamed, others palish, attended with pain, heat, tension, and pulsation. In their beginning they are sometimes no bigger than a pea, but often increase gradually

to the size of a walnut, egg, &c. sometimes also their growth is sudden, and at others slow, so as to continue upon the increase many years together. When they ulcerate, the suppuration is generally partial, the matter they discharge seeming of an ill-colour, and very fetid. All cancers are dangerous, and seldom give way to the use of evacuating medicines, especially when they lie deep, or seem owing to a particular constitution of the patient. They also prove more difficult to cure, according to their size, the nature and office of the part they affect, the age of the patient, &c. Some occult cancers, particularly those which happen in the breasts of women, may remain harmless in the body for several years, and without ulcerating; though, upon any external injury, they may afterwards increase, break, and soon prove mortal. In this case, every thing that suddenly rises the velocity of the blood should be carefully avoided.

The learned Dr. Stork, of Vienna, has published two pieces on the virtues of cicuta, or hemlock, in cure of cancers, and given many remarkable cases in which it was attended with success. Experiments of the same kind have also been made in England, some of which have succeeded, while others have totally failed of success: so that the virtues of hemlock in curing this terrible disease are not yet properly established. See *Cicuta*.

CANCER, in astronomy, one of the twelve signs of the zodiac, represented on the globe in the form of a crab.

Ptolemy makes it contain thirteen stars; Tycho Brahe fifteen; Bayer and Hevelius twenty-nine; and Flamsteed seventy-one. It is the fourth sign, reckoning from aries, and gives name to one of the quadrats of the ecliptic.

Tropic of CANCER, in astronomy, a lesser circle of the sphere parallel to the equator, and passing through the beginning of the sign cancer.

CANCEROUS, belonging to, or partaking of, the nature of a cancer. See *Cancer*.

CANDIDATE, one who aspires to some public office.

CANDLE, a small taper of tallow, wax, or sperma ceti; the wick of which is commonly of several threads of cotton, spun and twisted together. A tallow-candle, to be good, must be half sheeps, and half bullocks tallow; for hogs tallow makes the candle gutter, and always

gives an offensive smell, with a thick black smoke. The wick ought to be pure, sufficiently dry, and properly twisted, otherwise the candle will emit an unconstant vibratory flame, which is both prejudicial to the eyes; and insufficient for the distinct illumination of objects. There are two sorts of tallow-candles; the one dipped, the other moulded; the former are the common candles; the latter are the invention of the Sieur le Brege, at Paris.

Sale or Auction by inch of CANDLE, is when a small piece of candle being lighted, the bystanders are allowed to bid for the merchandize that is selling; but the moment the candle is out, the commodity is adjudged to the last bidder.

CANDLE-BERRY-TREE, in botany, the English name of a species of myrica. From the berries of this tree a green kind of wax is drawn by boiling, whereof they make candles; and hence is derived the candle-berry-tree.

CANDLEMAS, a feast of the church held on the second day of February, in honour of the purification of the Virgin Mary. It is borrowed from the ancient Christians, who on that day used abundance of lights in their churches and processions, in memory, as is supposed, of our Saviour's being on that day declared by Simon, "To be a light to lighten the Gentiles." In imitation of this custom, the Roman Catholics, on this day, consecrate all the tapers and candles which they use in their churches during the whole year. At Rome the Pope performs that ceremony himself, and distributes wax-candles to the cardinals and others, who carry them in procession through the great hall of the pope's palace. This ceremony was prohibited in England by an order of council in 1548.

CANDLESTICK, a well-known instrument to hold a candle.

CANDY, or *Sugar CANDY*, a preparation of sugar, made by melting and crystallizing it six or seven times over, to render it hard and transparent. It is of three kinds, white, yellow, and red. The white comes from the loaf-sugar, the yellow from the cassonada, and the red from the muscovado. See **SUGAR**.

CANDYING, in pharmacy, the act of preserving simples in substance, by boiling them in sugar. The performance of this originally belonged to the apothecaries, but is now become a part of the business of a confectioner.

CANE, a walking-stick; and it is customary to adorn it with a head of gold, silver, agate, &c. Some are without knots, and very smooth and even; others are full of knots, about two inches distant from each other. The last have very little elasticity, and will not bend so well as the others. Canes of Bengal are the most beautiful, which the Europeans bring into Europe. Some of them are so fine, that people work them into vessels or bowls, which being varnished over in the inside with black or yellow lacca, will hold liquors as well as glass or china ware, and the Indians use them for that purpose.

CANELLA ALBA, wild cinnamon, in the materia medica, the inner bark of a large bay-leaved tree, growing in the Low lands of Jamaica, and other American islands; brought over in the form of quills; of which some are large and thick, taken from the trunk of the tree; others slender and thinner, from the branches having generally pieces of a wrinkled brownish coat adhering to the outside, lined on the inside with a fine white membrane, breaking over with a close even surface, and appearing internally of an unequal, pale, brownish or yellowish white colour.

Canella alba has hitherto been rarely employed in medicine. The London college has now received it in two official compositions for alleviating the ill flavour of aloes. It is a moderately warm aromatic; of an agreeable smell, somewhat resembling that of cloves, but far weaker; and of a pungent taste, accompanied with a considerable bitterness.

* **CANENS**, in fabulous history, the wife of Picus, king of the Lauretans, whose husband being turned by Circe into a wood-pecker, lamented him till she dissolved into air.

CANICULA, or **CANICULUS**, in astronomy. See **CANIS MINOR**.

CANICULAR DAYS, commonly called dog-days, a certain number of days preceding and ensuing the heliacal rising of canicula, or the dog-star in the morning.

The dog-days begin towards the end of July, and end the beginning of September.

CANINE, what partakes of, or relates to the nature of a dog.

CANINE TEETH, in anatomy, are two sharp-edged teeth in each jaw: one

on each side, placed between the incisores and molares.

CANINE MUSCLES, a pair of muscles common to both lips. They arise from the hollow on each side under the os jugalis, in the os maxillare, and are inserted into the angle of the lips.

CANIS, dog, in zoology, the name of a comprehensive genus of quadrupeds, of the order of fere. They are distinguished from the other genera of this order, by the number of their teats, or paps, which in the dog kind are ten, four on the breast, and six on the belly: add to this, that their feet are adapted for running; they have five toes on the fore feet, and four on the hinder.

CANIS MAJOR, in astronomy, a constellation of the southern hemisphere, consisting of twenty-eight stars; according to Ptolemy; of thirteen, according to Tycho Brahe; and thirty-two in the Britannic catalogue.

CANIS MINOR, **CANICULUS**, or **CANICULA**, in astronomy, a constellation of the northern hemisphere. In Ptolemy's catalogue, the canis minor comprehends two stars; in that of Tycho Brahe, five; and in the Britannic catalogue, fifteen.

CANISTER, a large tin-box, in which tea is brought from China. They are of several sizes, holding from one pound to ten of that vegetable.

CANKER, a speck made by a sharp humour, which gnaws the flesh almost like a caustic; very common in the mouths of children.

CANKER in Trees, a wound or blemish in the trunk of the tree, which does not heal up by nature, but will increase and damage, if not endanger the whole tree. These wounds are sometimes occasioned by accidents, as blows, or by the branches of one tree galling another by the motion they are put into by the winds; if this latter be the case, the offending branch must be cut off, or draw another way, or else all remedies are vain. The wound must be cut and enlarged every way to the quick, and all the decayed wood must be taken clean out; the whole internal surface of the wound must be rubbed over with tar mingled with oil; and after this it must be filled up with clay and horse-dung mixed together, or with horse-dung alone, which many esteem best of all; in this case the dung must be bound over with a tag: hogs-dung is by many preferred to

horse-dung for this purpose; and it is proper to add to this application the keeping the roots cool and moist, by laying fern and nettles about them. The adding a coat of dung, and pond or river mud, about the roots of trees, if they are subject to this from their standing in a dry barren land, as is often the case, is a very good cure.

CANNA, the fruit of which is a roundish, scabrous, coronated, trifurcated capsule, with three cells and three valves, containing some globose seeds.

CANNABIS, hemp, in botany. See *Hemp*.

CANNEQUINS, white cotton-linens brought from the East-Indies, a very proper commodity for trading on the coast Guinæa.

CANNEL COAL, in the materia medica, a substance, which has a long time been confounded, both by authors and druggists, with jet. It is dug up in many parts of England in great abundance, particularly in Lancashire, where it is burnt as common fuel. It is worked into toys and utensils of various kinds, under the name of jet.

CANNON, a military engine for throwing balls, &c. by the help of gunpowder.

The invention of cannon is generally supposed to have happened in the 14th century.

The matter of which cannons are made is either iron or brass, or rather a mixture of copper, tin, and brass. The mixture of tin is designed to make the metal more compact and dense; so that the heavier the copper is, the less tin it requires. It is usual to add eight pounds of brass and ten pounds of tin to one hundred pounds of copper; but sometimes they use ten pounds of tin, ten pounds of lead, and five pounds of brass.

The parts and proportions of cannon about eleven feet long are: the barrel or cavity nine feet; its fulcrum or support fourteen; and its axis seven; the diameter of the bore at the mouth six inches two lines; the plug of the ball two lines; the diameter of the ball therefore six inches, and its weight thirty-three $\frac{1}{4}$ pounds; the thickness of the metal about the mouth two inches, and at the breech six; the charge of powder from eighteen to twenty pounds. It will carry points blank six hundred paces, and may be loaded ten times in an hour, and sometimes fifteen.

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Cannons are distinguished by the diameters of the balls they carry. The rule for their length, &c. is, that the whole charge of powder be on fire before the ball quit the piece. If it be made too long, the quantity of air to be driven out before the ball, will give too much resistance to the impulse: and that impulse ceasing, the friction of the ball against the surface of the piece will lessen its velocity.

The greatest range of a cannon is ordinarily fixed at 45 deg. but Dr. Halley shews it to be at 44½.

Experience shews, that two cannons of equal bore, but different lengths, the longer requires a greater charge of powder than the shorter. The ordinary charge of cannon is to have the charge of its powder half that of its ball.

CANNULA, in surgery, a tube made of different metals, principally of silver and lead, but sometimes of iron. They are introduced into hollow ulcers, in order to facilitate a discharge of pus or any other substance; or into wounds, either accidental or artificial, of the large cavities, as the thorax or abdomen: they are used in the operation of bronchotomy, and by some, after cutting for the stone, as a drain for the urine.

Other cannulas are used for introducing cauteries, either actual or potential, in hollow parts, in order to guard the parts adjacent to that to be cauterized from injury. They are of various figures; some being oval; some round, and others crooked.

CANOE, a kind of boat formed of the trunk of a tree hollowed: and sometimes composed of several pieces of the bark sewed together. They are generally rowed with paddles, which are pieces of light wood, nearly resembling a corn shovel; and instead of moving the paddle horizontally like an oar, they row perpendicularly: the small ones are very narrow, having only room for one person in breadth, and eight or ten lengthwise. They very rarely carry sail, unless when going before the wind; and their sails are made of a sort of rushes or silk-grass; they seldom have any rudder, the want of which is supplied by a dextrous management of the hind-oars. The negroes in Guinea, and even many in the East Indies, use them. The American Indians, when they are necessitated to land on account of a water-fall, or other occasion, carry their canoes on their heads or shoulders, till they arrive at some

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place where they may again be launched. In the repository of the Royal Society is the model of a Greenland canoe, covered with seal-skins, and resembling a great bladder; so that however the waves dash over it, the person who manages it is safe.

CANON, in ecclesiastical affairs, one who possesses a revenue allotted for the performance of divine service in a cathedral or collegiate church.

CANON of Scripture, a list of the inspired writings; or such books of the Bible as are called canonical, because they are in the number of those books which are looked on as sacred.

The canon of Scripture may be considered either as Jewish or Christian with respect to the sacred writings acknowledged as such by the Jews, and those admitted by the Christians.

As for the Christian church, there is no doubt but it acknowledged those books to be canonical, which were cited, as of divine authority, by Christ and his apostles. As to the canon of the New Testament, it is to be observed, that the four Evangelists, the Acts of the Apostles, all the Epistles in St. Paul, except that to the Hebrews, and the first Epistles of St. Peter and St. John, have been received as canonical by the unanimous consent of all the churches in all times; the Epistle of St. James, that of St. Jude, the second Epistle of St. Peter, and the second and third Epistles of St. John, were not received by all the churches from the beginning, as canonical; but have since been acknowledged as genuine, and therefore admitted into the canon. We must observe, that the canon of the New Testament was neither settled by any synod, or single authority: this collection was formed upon the unanimous consent of all the churches, who, by constant tradition, reaching to the apostolical age, had received such a number of them as were written by inspired authors.

CANON, in monastic orders, a book wherein the religious of every convent have a fair transcript of the rules of their order, frequently read among them, as their local statutes.

CANON, in music, a composition of two or more parts, in which one leads, and the other follows: or it is a line of any length, shewing, by its division, how musical intervals are distinguished according to the ratios, or proportions, that the sounds terminating the intervals bear

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one to another, when considered according to their degree of being acute or grave.

CANON, in arithmetic, algebra, &c. a rule to solve all things of the same nature with the present inquiry: thus, every last step of an equation in algebra, is such a canon; and it turned into words, is a rule to solve all questions of the same nature with that proposed.

CANON-LAW, a collection of ecclesiastical laws, serving as the rule and measure of church government. The power of making laws was exercised by the church before the Roman empire became Christian. The canon-law that obtained throughout the West, till the twelfth century, was the collection of canons made by Dionysius Exiguus, in 520, the capitularies of Charlemagne, and the decrees of the popes, from Siricius to Anastasius.

The authority vested in the church of England of making canons, was ascertained by a statute of Henry VIII. commonly called the act of the clergy's submission; by which they acknowledged that the convocation had been always assembled by the king's writ; so that though the power of making canons resided in the clergy, met in convocation, their force was derived from the authority of the king's assenting to, and confirming them. The old canons continued in force till the reign of James I. when the clergy being assembled in convocation, the king gave them leave to treat and consult upon canons, which they did, and presented them to the king, who gave them the royal assent: these were a collection out of the several preceding canons and injunctions. Some of these canons are now obsolete. In the reign of Charles I. several canons were passed by the clergy in convocation.

CANONNESS, in the Romish church, a woman who enjoys a prebend, affixed, by the foundation, to maids, without their being obliged to renounce the world, or make any vows.

CANONICAL, belonging to, or partaking of, the nature of a canon. See **CANON-LAW**. We also meet with canonical life, canonical hours, &c. used much in the same sense.

CANONIST, one skilled in, or who makes profession of the canon-law. See **CANON-LAW**.

CANONIZATION, a ceremony in the Romish church, by which persons deceased are ranked in the catalogue of the saints. It succeeds beatification. Before a beatified person is canonized, the qualifications

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of the candidate are strictly enquired into, in some consistories held for that purpose; after which one of the consistorial advocates, in the presence of the pope and cardinals, make the panegyric of the person who is to be proclaimed a saint, and gives a particular detail of his life and miracles; which done, the holy father decrees his canonization, and appoints the day. On the day of canonization, the pope officiates in white, and their eminences are dressed in the same colour. St. Peter's church is hung with rich tapestry, upon which the arms of the pope, and of the prince or state requiring the canonization, are embroidered in gold and silver. An infinite number of lights blaze all round the church, which is crowded with pious souls, who wait with a devout impatience, till the new saint has made his public entry, as it were, into Paradise, that they may offer up their petitions to him, without danger of being rejected. The following maxim, with regard to canonization, is now observed, though it has not been followed above a century, viz. not to enter into the enquiries prior to canonization, till fifty years, at least, after the death of the person to be canonized.

CANONRY, the benefice filled by a canon.

CANOPY, a magnificent covering, raised above an altar, throne, chair of state, pulpit, and the like.

CANTALIVERS, in architecture, pieces of wood framed into the front or other sides of the house, to suspend the mouldings and caves over it.

Cantalivers seem, in effect, to be the same with modillions, except that the former are plain, and the latter carved: they are both a kind of cartouches, set at equal distances under the corona of the cornice of a building.

CANTATA, in music, a poetical composition, intermixed with recitative, airs, and different movements, chiefly intended for a single voice, with a thorough bass, though sometimes for other instruments.

* **CANTERBURY**, the capital city of the county of Kent. In the time of the Saxon heptarchy it was the capital city of Kent, and the seat of its kings. It was greatly shattered by fire, and yet it was rebuilt with greater beauty than before. It had many privileges granted by several kings, and Henry VI. ordained its government to be by a mayor, a recorder, twelve alder-

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aldermen, a sheriff, twenty-four common-council-men, a mace and sword bearer, and four serjeants at mace; and it has fourteen parish churches, besides the cathedral; with two markets on Wednesdays and Saturdays, and a fair on the 29th of Sept. for toys. What added to the wealth and grandeur of the city was Thomas Becket's shrine, which was visited by devout persons from all parts, not only of England, but of Europe. It was made an archiepiscopal see by pope Gregory I. who removed it from London; and it has since received many benefactions from several of the archbishops. The principal church in Canterbury is the cathedral, which is very magnificent. In the times of popery it had thirty-seven altars, which are now reduced to one communion table. The font is a curious piece of workmanship, and was built by Dr. Warner, bishop of Rochester. The Martyrdom, a place so called, is at the foot of the stairs that go up out of the nave into the choir. It has its name from the murder of Thomas Becket. Here are several monuments and burial inscriptions of kings, queens, and great persons. Near the cathedral is a church for foreign Protestants, which is now used by the French refugees. This cathedral has been several times burnt, since it was first consecrated, and the last time was in 1174, after which it was not quite finished till the reign of Henry V. The shrine of Thomas Becket was very rich in gold and precious stones, which Henry VIII. seized for his own use, at the dissolution of the monasteries.

This city is not very large, for it and the suburbs are but a mile long, and it is about three in circumference. The houses are not very extraordinary, and most of the streets are narrow. The residence of the archbishop is not here, but at Lambeth, near London, and at Croydon, in Surry. The city is seated in a good air, in a fruitful pleasant country. It is seated on the river Stower, in which there are good trout. With regard to the antiquities of Canterbury, there are many remains of Roman buildings, which shew that it was a considerable place in the time of the ancient Romans. Canterbury is 27 miles from Rochester, and 57 from London.

CANTERBURY-BELL, in botany, the name by which some call the campanula, or bell-flower.

CANTHARIDES, in the materia medica, a beautiful kind of winged insect, of a bright, shining, greenish golden colour,

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with some admixture of bluish. They were formerly brought from Spain; and are therefore still commonly called Spanish flies. They are not, however, peculiar to that kingdom. France, some parts of Germany, and other countries, produce abundance. It is principally in the spring, and on poplar and alh-trees, that they are met with.

Cantharides, when fresh, applied to the skin, raise a blister on the part. The usual blistering plasters are composed of powdered cantharides and some common plaster, in the proportion of one part of cantharides, to two, six, eight, or more of the plaster, according as the composition is required to be more or less active.

Taken internally, in the dose even of a few grains, they generally occasion violent irritation and inflammations. They act in a peculiar manner upon the kidneys, and the urinary and seminal vessels: when applied only externally as a blister to remote parts, they often affect the bladder, and bring on a difficulty and pain in making water. They are nevertheless given inwardly in small doses, both with safety and advantage, in some refractory disorders, which baffle the force of medicines of less activity. Dr. Graneveld, who was imprisoned in England for having ventured to exhibit them, published a treatise in defence of his practice and of the utility of the medicine. He employs camphor for correcting the virulence of the cantharides; but the best remedies against the ill effects of this, as of other stimulating drugs, are milk and expressed oils.

CANTICLES, a canonical book of the Old Testament. The Talmudists ascribe it to Hezekiah, but the learned are agreed that Solomon was the author of it; and his name is prefixed to it in the title of the Hebrew text, and of the ancient Greek version. It is a kind of epithalamium, in the form of an idyllium or bucolic, in which are introduced, as speakers, a bridegroom, a bride, the friends of the bridegroom, and the companions of the bride. Some authors are of opinion, that Solomon's design in this piece, was to describe his amour with Abishag the Shunamite, or with the daughter of Pharaoh: on the contrary, others take it to be wholly allegorical, and understand it of the spiritual love of God towards his church.

CANTO, in music, the treble, or at least the higher part of a piece.

CANTONED, in architecture, is when the corner of a building is adorned with

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with a pilaster, an angular column, rustic quoins, or any thing that projects beyond the wall.

CANTONED, or CANTONIZED, *Cantoni*, in heraldry, the position of such things as are borne with a cross, &c. between. He bears gulis, a cross argent cantoned with four scallop-shells.

CANTONING, in the military art, the allotting distinct and separate quarters to each regiment of an army; the town where they are quartered, being divided into so many cantons, as there are regiments.

CANT-TIMBERS, in ship-building, those timbers, or ribs of the ship which are situated afore and abaft, or at the two ends where the ship grows narrower below.

CANVAS, a very clear unbleached cloth of hemp, or flax, wove in little squares. It is used for working tapestry with the needle, by passing the threads of gold, silver, silk, or wool, through the intervals or square.

CANVAS, is also a coarse cloth of hemp, unbleached, somewhat clear, which serves to cover womens stays, also to stiffen mens cloaths, and to make some other of their wearing apparel, &c.

CANVAS is also a very coarse cloth made of hemp, unbleached, serving to make towels, and answering other domestic purposes. It is also used to make sails for shipping, &c.

CANUTE, the first Danish King of England, invaded this country in 1015, was chosen king by the clergy at Southampton in 1016, began to reign about 1017; made an alliance with Normandy, and married Emma, Ethelred's widow 1018; made a voyage to Denmark, attacked Norway, and took possession of the crown 1028; died at Shaftsbury 1036, was buried at Winchester, and succeeded by his second son Harold.

CAP, a part of dress made to cover the head.

CAP of Maintenance, one of the regalia, or ornaments of state belonging to the kings of England, before whom it was carried at the coronation, and other great solemnities. Caps of maintenance are also carried before the mayors of the several cities in England.

CAP of a Gun, a piece of lead which is put over the touch-hole of a gun, to keep the priming from being wasted or spoiled.

CAPACITY, an aptitude, or disposition to retain or hold any thing.

C A P

CAPACITY, in geometry, the solid contents of any body; also our hollow measures for wine, beer, corn, salt, &c. are called measures of capacity.

CAPACITY, in law, the ability of a man, or body politic, to give or take land, or other things, or sue actions.

CAPARISON, or HORSE-CLOTH, a sort of cover for a horse. For led horses, it is generally made of linen cloth, bordered round with woollen, and enriched with the arms of the master upon the middle, which covers the croupe, and with two cyphers on the two sides. The caparisons for the army, are sometimes a great bear's skin; and those for stables, are of single buckram in summer, and of cloth in the winter.

CAPE, in law, a judicial writ concerning plea of lands or tenements, and is divided into *cape magnum* and *cape parvum*, both of which affect things immovable; and besides these, there is a *cape ad valentiam*.

CAPE Magnum, or the grand cape, lies before appearance, to summon a tenant to answer the default, and also aver to the demandant.

The CAPE Parvum, is after appearance and view granted, and it summoneth the tenant to answer the default only.

CAPE ad valentiam is a species of *cape magnum*, where once being impleaded, and on a summons to warrant lands, a voucher does not come at the day; whereupon, if the demandant recovers of the tenant, he shall have this writ against the vouchee, and recover so much in value of his lands, in case he hath so much; and if not, there shall be an execution of such lands and tenements as shall after descend to him in fee; or if he purchases afterwards, there may be a resumption, &c. against him.

CAPELET, a disease in horses, when the tip of the hock is moveable; and more swelled than ordinary.

CAPELLA, in astronomy, a bright fixed star in the left shoulder of the constellation auriga. It is, in the Britannic catalogue, the fourteenth in order of that constellation: and its longitude is $17^{\circ} 27' 31''$ of Gemini, its latitude $22^{\circ} 51' 47''$ N.

CAPER Capparis, in botany a genus of plants, the buds of which make a considerable article in commerce; they are imported from Italy and France in pickle, and used in sauces, &c.

The caper-bark of the shops is not the bark of the branches, but that of the roots of the shrub which produces it.

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It is an aperient and attenuant, and is recommended in nephritic cases, and in dropsies, jaundices, and many other chronic diseases; but the present practice does not pay any regard to it.

CAPHAR, a duty which the Turks raise on the Christians, who carry or send merchandizes from Aleppo to Jerusalem, and other places in Syria.

CAPL-AGA or **CAPOU-AGASSI**, a Turkish officer, who is, as it were, grand-master of the seraglio.

He is the first in dignity of all the white eunuchs, and is always near the grand seignior's person, he introduces ambassadors to audience; and all great affairs pass through his hands before they come to that of the prince.

CAPIAS, in law, a writ of two sorts, one before judgment in an action, and the other after; that before judgment is called *capias ad respondendum*, where an original is sued out, to take the defendant, and make him answer the plaintiff; and that after judgment is the *capias ad satisfaciendum*. &c.

CAPIAS AD SATISFACIENDUM is a writ of execution that issues on a judgment obtained, and lies where any person recovers in a personal action, as for debt, damages, &c. in which cases this writ issues to the sheriff, commanding him to take the body of him against whom the debt is recovered, who is to be kept in prison till he make satisfaction.

CAPIAS PRO FINE is a writ lying where a person is fined to the king, for some offence committed against a statute, and he does not discharge the fine according to the judgment; therefore his body shall be taken by this writ, and committed to gaol till the fine is paid.

CAPIAS UTLEGATUM, a writ which lies against any one outlawed, upon any action personal or criminal, by which the sheriff is ordered to apprehend the party outlawed, for not appearing on the exigent, and keep him in safe custody till the day of return, when he is to present him to the court, to be there farther ordered for his contempt.

CAPIAS IN WITHERNAM, a writ that lies for cattle in *Witernam*; that is, where a distress taken is driven out of the county; so that the sheriff cannot make a deliverance upon a replevin; then this writ issues, commanding the sheriff to take as many beasts of the distrainer.

CAPILLAMENTS of the Nerves, in anatomy, the fine fibres, or filaments, whereof the nerves are composed.

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CAPILLAMENTS, in botany, those small threads or hairs which grow up in the middle of a flower, and are adorned with little knobs at the top: those knobs are called the apices, or anthers, of a flower; and the capillaments are called the stamens. See STAMINA.

CAPILLARY, an appellation given to things on account of their extreme fineness, or resembling hair.

CAPILLARY FRACTURE, a small fracture of the skull. See FRACTURE.

CAPILLARY PLANTS, such plants as have no main stem, but their leaves arise from the root upon pedicles, and produce their seeds on the back of their leaves, as the fern, maiden-hair, &c.

CAPILLARY TUBES, in philosophy, small pipes of glass, whose canals are extremely narrow, their diameter being only a half, a third, or a fourth of a line.

The ascent of water, &c. in capillary tubes, is a phenomenon that has long embarrassed the philosophers: for let one end of a glass tube open at both extremities, be immersed in water, the liquor within the tube will rise to a considerable height above the external surface: or if two or more tubes are immersed in the same fluid, one a capillary tube, and the other of a larger bore, the fluid will ascend higher in the former than in the latter; and this will be in a reciprocal ratio of the diameters of the tubes.

In order to account for this phenomenon, it will be necessary first to premise, that the attraction between the particles of glass and water is greater than the attraction between the particles of water themselves: for if a glass tube be placed in a position parallel to the horizon, and a drop of water be applied to the under side of the tube, it will adhere to it; nor will it fall from the glass till its bulk and gravity are so far increased, as to overcome the attraction of the glass. Hence it is easy to conceive how sensibly such a power must act on the surface of a fluid, not viscid as water, contained within the small cavity or bore of a glass-tube; as also that it will be proportionably stronger as the diameter of the bore is smaller; for it will be evident that the efficacy of the power is in the inverse proportion of the diameter, when it is considered, that such particles only as are in contact with the fluid, and those immediately above the surface can effect it.

CAPILLARY Vessels, in anatomy, the smallest

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smallest or extreme parts of the veins and arteries.

CAPILLITIUM *Veneris*, in philosophy, the fine threads often seen floating in the air during the autumn. See **AIR-THREADS**.

CAPISTRUM, in surgery, the name of a bandage used in case of fractures of the jaw.

CAPITAL, in a general sense, implies the head, chief, or principal of a thing.

CAPITAL, in geography, the principal city of a kingdom, province, or state. See **METROPOLIS**.

CAPITAL, among merchants, the sum of money which individuals advance to make up the common stock of a partnership when it is first formed. It is also used to signify the stock with which a merchant first begins trade. It likewise denotes the fund or stock of a trading company or corporation.

CAPITAL Crime, a crime which subjects the criminal to a capital punishment or loss of life.

CAPITAL, in architecture, the uppermost part of a column or pilaster, serving as the head or crowning, placed immediately over the shaft, and under the entablature.

The capital is the principal and essential part of an order of a column or pilaster, and is of a different form in different orders, becoming the distinguishing characteristic between them. Vitruvius tells us that Callimachus, an ingenious statuary of Athens, invented the first regular capital from the following accident. An Athenian old woman happening to place a basket covered with a square tile over the foot of an acanthus, which grew on the grave of a young Corinthian lady, the plant shooting up the following spring, encompassed the basket all round, till meeting with the tile it curled back in a kind of scrolls. The above sculptor passing by, and observing it, executed a capital on this plan, representing the tile by the abacus, the leaves of the acanthus by the scrolls, and the basket by the body of the capital.

The Tuscan CAPITAL is the most simple and unadorned of all the rest; its members or parts are four only, viz. an abacus *a*: (plate XV. fig. 1.) an ovolo or quarter round *b*; a collarino or neck *c*; and an astragal *d*; the latter indeed properly belongs to the fust or shaft.

The character which distinguishes this capital from the Doric, &c. is that the abacus is square and quite plain, having

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no ogee or other moulding; and that there are no annulets under the ovolo. Authors indeed vary a little with regard to the character of the Tuscan capital.

The height of this capital is the same with that of the base, viz. one module, or semidiameter. Its projecture is equal to that of the bottom of the column, viz. five eighths of the module.

The Doric CAPITAL has three annulets, or little square members, underneath the ovolo, instead of the astragal in the Tuscan, besides the abacus, an ovolo and a neck, all which it has in common with the former; and a talon, cyma, or ogee, with a fillet over the abacus. See plate XV. fig. 2.

Vitruvius makes the height of this capital equal to half the diameter of the column below; and this height being divided into three parts, the first goes to the neck, the second to the boustin, and the third to the uppermost part of the capital.

The Ionic CAPITAL is composed of three parts; an abacus, consisting of an ogee; under this a rind, which produces the volutes or scrolls, the most essential parts of this capital; and at the bottom an ovolo or quarter round. The astragal under the ovolo belongs to the shaft: the middle part is called the rind or bark, from its supposed resemblance to the bark of a tree, laid on a vase, whose brim is represented by the ovolo, and seeming to have been shrunk up in drying, and to have been twisted into the volutes. The ovolo is adorned with eggs, as they are sometimes called from their oval form. See plate XV. fig. 3.

The height of this capital, according to M. Perault, is eighteen minutes, and its projecture one module seven tenths.

The Corinthian CAPITAL is the richest of all the orders, and imputed to Callimachus, an Athenian statuary, as we have already observed. It is adorned with eight volutes *a*, (plate XV. fig. 5.) a double row of leaves *b*, and eight scrolls *c*, situated round a body called by some campana or bell, and by others tambour or drum.

The height of this capital is two modules and one third, and its projecture one module and one third.

The Composite CAPITAL is an invention of the Romans, and is composed of the double row of leaves in the Corinthian, and the volutes in the Ionic. See plate XV. fig. 6.

The height of this capital is two modules and one third, and the projecture one module and two thirds.



Fig. 1. Tuscan Capital.

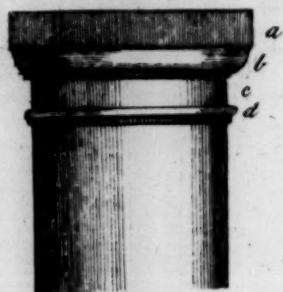


Fig. 2. Doric Capital.



Fig. 3. Ancient Ionic Capital.



Fig. 4. Modern Ionic Capital.

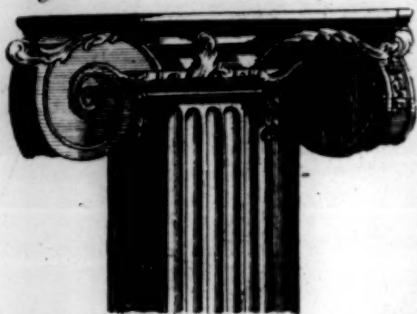


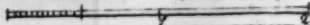
Fig. 5. Corinthian Capital.



Fig. 6. Composite Capital.



Modules or 24 Minutae.



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Artic CAPITAL, that which has leaves of partition in the gorge.

Angular CAPITAL, that which supports the return of an entablature, at the corner of the projecture of a frontispiece.

CAPITAL of a Balluster, that part which crowns a balluster, resembling sometimes the capital of some order, generally the Ionic.

CAPITAL of a Triglyph, the plat-band over the triglyph, called by Vitruvius *tenia*. It is sometimes a triglyph, and performs the office of a capital to the Doric pilaster.

CAPITAL of a Niche, a kind of small canopy made over a shallow niche, to cover a statue.

CAPITAL of a Lantern, a covering, sometimes of one form, and sometimes of another, which finishes the lantern of a dome.

CAPITAL of a Bastion, a line drawn from the point of the bastion to the angle of the polygon; or from the point of the bastion to the middle of the gorge.

CAPITALS, among printers, large or initial letters, with which all periods, verses, &c. commence.

CAPITATION, a tax raised on each person in consideration of his labour, industry, office, rank, &c.

CAPITOL, in antiquity, a celebrated castle erected on the summit of the Mons Capitolinus at Rome, and contained a temple dedicated to Jupiter, in which the senate formerly assembled. The nave of this structure was sacred to Jupiter, one of the wings to Juno, and the other to Minerva. In this beautiful edifice, which was richly ornamented, were contained the most sacred deposits of religion, such as the ancyra, the books of the Sybils, &c.

CAPITULATION, in military affairs, a treaty between the garrison or inhabitants of a place besieged, and the besiegers, for delivering up the place on certain conditions.

CAPITULATION, in the German polity, a contract made by the emperor with the electors, in the name of all the princes and states of the empire, before he be declared emperor, and which he ratifies before he is raised to the Imperial dignity.

CAPITULUM, among botanists, the same with umbel. See *UMBEL*.

CAPIVI, or **COPAIBA**. See *BALSAM of Copaiba*.

CAPON, a cock chicken, gelded as soon as left by the hen, or at least as soon as he begins to crow.

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CAPONIERE, or **CAPONNIERE**, in fortification, a work sunk four or five feet deep, on the glacis of a place; the earth that is thrown out of it serves to form a parapet of two or three feet high, furnished with loop-holes, or small embrasures; it is covered over head with strong planks, on which are laid clays, or hurdles, to support the earth, with which the whole is covered. It will contain about fifteen or twenty men, who fire through the loop-holes upon the besiegers. Caponieres are sometimes made in the bottom of a dry moat.

CAPRA-SALTANS, in meteorology, a fiery meteor or exhalation, sometimes seen in the atmosphere. It forms an inflected line, resembling in some measure the caperings of a goat; whence it has its name.

CAPRARIA, in botany, a genus of plants.

CAPREA, or **CAPREOLUS**, the roe-deer, in natural history, an animal of the deer-kind, with rounded, erect, and ramose horns.

CAPRICORN, in astronomy, one of the twelve signs of the zodiac, represented on globes in the form of a goat, and in astronomical books with the following character, ♈. See *GLOBE*.

It is the tenth sign in order, and consists of nineteen stars in the catalogues of Ptolemy and Tycho Brahe; of twenty-nine in that of Hevelius; and of fifty-one in that of Mr. Flamsteed.

Tropic of CAPRICORN, a lesser circle of the sphere, parallel to the equinoctial, and $23^{\circ} 29'$ distant from it towards the south-pole.

CAPRIOLES, in the manege, the leaps made by a horse in the same place, without advancing, in such a manner, that when he is at the height of the leap, he jerks out his hinder legs.

CAPSICUM, guinea-pepper, in the materia medica, long, roundish, taper, bright red pods, divided into two or three cells full of small whitish seeds; the fruit of an annual plant, which is a native of the torrid zone, and raised in some of our gardens. Capsicum is sometimes given, in very small quantities, as one of the highest stimulants, in cold sluggish phlegmatic constitutions, in some paralytic cases, in relaxations and insensibility of the stomach, and for promoting the efficacy of aloe medicines and the deobstruent gums in uterine disorders; but its principal use is at the table. *A species*

CAP

Species of it, called, in the West-Indies, bird-pepper, is the basis of the powder brought from thence under the name of Cayan pepper. It is worth remarking, that this fruit, perhaps the strongest of the aromatic stimulants, is used freely by the natives of the warmer climates; possibly these pungent antiseptic kinds of substances may be more salubrious there than with us, as they seem qualified to resist or correct the putridinous colliquation of the humours which immoderate heat produces.

CAPSQUARES, in gunnery, strong plates of iron which come over the trunnions of a gun, and keep it in the carriage.

CAPSTAN, or **CAPSTERN**, in naval affairs, a strong massy piece of timber let down through the decks of a ship, and resting its foot, or axis, which is shod with iron, in an iron socket, called a *fracter*, which is fixed on a wooden block or standard, called the *step*, resting on the beams. There are usually two capsterns: they are used to heave the anchors up to the ship; to draw up or let down the top-masts or any other weighty body; or to heave any great strain in a level direction, as drawing the ship forward or backward, &c.

CAPSULATE, or **CAPSULATED PLANTS**, those furnished with capsules for the reception of their seed.

CAPSULE, in a general sense, implies a small receptacle or coffer, in the form of a bag.

CAPSULE, among botanists, a kind of pericarpium or seed vessel, composed of several elastic valves, which usually burst open at the points when the seed is ripe. It differs from a pod in being short and roundish.

CAPSULA COMMUNIS, in anatomy, a tunic continuous with the peritoneum, and includes the branches of the vena porta and biliary ducts, both as they approach the liver and within it.

CAPSULÆ SEMINALES, the same with vesiculæ seminales. See *Vesiculae*, &c.

CAPTAIN, a military officer, whereof there are various kinds.

CAPTAIN of a Troop or Company, an officer, who commands a troop or horse of company of foot, under a colonel. In the same sense, we say, captain of dragoons, of grenadiers, of marines, of invalids, &c. In the horse and foot guards, the captains have the rank of colonels.

CAPTAIN General, he who commands in chief.

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CAPTAIN Lieutenant, he who with the rank of captain, but the pay of lieutenant, commands a troop or company in the name and place of some other person who is disabled with, on account of his quality, from performing the functions of his post. Thus the colonel, being usually captain of the first company of his regiment; that company is commanded by his deputy, under the title of captain-lieutenant.

CAPTAIN BASHAW, or **CAPON-DAN BASHAW**, in the polity of the Turks, signifies the Turkish high-admiral. He possesses the third office of the empire, and is invested with the same power at sea, that the vizier has on shore. Solymann II. instituted this office in favour of the famous Barbarossa, with absolute authority over the officers of the marine and arsenal, whom he may punish, cashier, or put to death, as soon as he is without the Dardanelles.

CAPTAIN of a Ship of War, an officer who commands a ship of the line of battle, or a frigate bearing twenty guns or above. This officer ranks with a colonel in the army. The officers who command ships of war, bomb-ketches, fire-ships, or armed ships, are only called commanders; and their rank with majors in the army.

CAPTION, in law, is where a commission is executed, and the commissioners subscribe their names to a certificate, declaring when and where the commission was executed. It relates chiefly to commissions to take answers in chancery, and depositions of witnesses, and take fines of lands, &c.

CAPTIVE, a person taken by the enemy in war, or by a pirate of coastair. See *Slave* or *Pirate*.

CAPTIVITY, a punishment which God inflicted upon his people for their vices and infidelities. The first of these captivities is that of Egypt, from which Moses delivered them; after which are reckoned six during the government of the judges: but the greatest and most remarkable were those of Judah and Israel, which happened under the kings of each of these kingdoms. It is generally believed that the ten tribes of Israel never came back again after their dispersion; and Josephus and St. Jerom are of this opinion; nevertheless, when we examine the writings of the prophets, we find the return of Israel from captivity pointed out in a manner almost as clear as that of the tribes

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tribes of Benjamin and Judah. The captivities of Judah are generally reckoned four; the fourth and last of which fell in the year of the world 3416, under Zedekiah; and from this period begin the seventy years captivity, foretold by Jeremiah.

CAPTURE, prizes taken by the privateers, in time of war, which are to be divided between the captors. See **PRIZE**.

CAPUT, in anatomy. See **HEAD**.

CAPUT CONCUTIENS, a muscle of the neck, otherwise called transversarius secundus. See **TRANSVERSARIUS**.

CAPUT DRACONIS, the dragon's head, in astronomy, the ascending node of the moon. See **DRACO**.

CAPUT GALLINAGINIS, in anatomy, a kind of septum, or spongy border at the extremities of the apertures of each of the vesiculae feminales, serving to hinder the seed coming from one side, from rushing upon, and so stopping the discharge of the other.

CAPUT MORTUUM, in chemistry, that thick, dry matter which remains after distillation of any thing, but especially of minerals.

The caput mortuum, called also terra damnata, is found in form of a friable, porous matter, without taste or smell: it is ranked among the chemical elements, and supposed to constitute the dry, fixed, earthy, and solid parts of all bodies whatever. It is what the chemists call a passive element or principle, serving as the basis or support of the active ones.

CAR. See **CARR**.

CARABE. See **AMBER**.

CARABINE, a fire-arm, shorter than a musket, borne by the light horse, hanging at a belt over the left shoulder.

CARABINEERS, or **CARABINIERS**, regiments of light horse, carrying longer carabines than the rest, and used sometimes on foot.

CARACOL, in the menage, the half turn which a horseman makes, either to the right or left. In the army, the horse always make a caracol after each discharge, in order to pass to the rear of the squadron.

CARACOL, in architecture, a staircase in a helix or spiral form.

CARACT, **CARAT**, or **CARRAT**, the name of that weight which expresses the degree of fineness that gold is of. The mint-masters have fixed the purity of gold at twenty-four carats; though it is not possible so to purify and refine that metal, but it will want still about one

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fourth part of a carat in absolute purity and perfection. The carat is divided into 1-4th, 1-8th, 1-16th, and 1-32d. These degrees serve to distinguish the greater or lesser quantity of alloy therein contained: for instance, gold of twenty-two carats is that which has two-parts of silver, or of any other metal, and twenty-two of fine gold.

CARACT, weight which goldsmiths and jewellers use wherewith to weigh precious stones and pearls. This carat weighs four grains, but something lighter than the grains of other weights. Each of these grains is subdivided into 1-half, 1-4th, 1-8th, 1-16th, &c.

CARANNA, a concrete resinous juice, exuding from a large tree, of which we have no particular account: it is brought from New Spain and some other parts of America in little masses, rolled up in leaves of flax; externally of a darkish brownish colour, internally brown with a cast of red, variegated with irregular white streaks; somewhat soft and tenacious as it first comes over, but in keeping grows dry and friable. This juice has an agreeable smell, especially when heated, and a bitterish and slightly pungent taste.

The watery tincture smells agreeably of the caranna, and is in taste bitterish and somewhat warm. But,

The spirituous tincture is both in smell and taste stronger and more agreeable than the watery. Caranna has been chiefly employed as an ingredient in vulnerary balsams, corroborant and discutient plasters, and other external applications. It has very seldom been given internally and is now almost wholly in disuse.

CARAT, or **CARACT**. See **CARACT**.

CARAVAN, or **CARAVANNE**, in the East, a company or assembly of travellers and pilgrims, or of merchants, who for their greater security, and in order to assist each other, march in a body through the deserts, and other dangerous places, which are infested with Arabs or robbers. There is a chief, or aga, who commands the caravan, and is attended by a certain number of janizaries, or other militia; which number of soldiers must be sufficient to defend them, and conduct them with safety to the places for which they are designed, and on a day appointed. The caravan encamps every evening near such wells, or brooks, as their guides are acquainted with; and there is a strict discipline observed upon this occasion, as in armies in time of war. Their beasts of burden are

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most commonly camels, who are capable of undergoing a very great fatigue.

CARAVANIER, one who leads the camels and other beasts of burden, who are commonly used in the caravans in the East.

CARAVANSERA, or **KARAVAN-SERA**, a place appointed for receiving and loading the caravans.

CARAWAY, **CARRAWAY**, the English name of the carui of botanists. See **CARUI**.

CARBUNCLE, in natural history, an elegant gem, of a deep red; with an admixture of scarlet. This gem was known among the ancients by the name of anthrax. It is usually found pure and faultless, and is of the same degree of hardness with sapphire: it is naturally of an angular figure; and is found adhering, by its base, to a heavy and ferruginous stone of the emery kind: its usual size is near a quarter of an inch in length, and two thirds of that in diameter in its thickest parts: when held up against the sun it loses its deep tinge, and becomes exactly of the colour of a burning charcoal; whence the propriety of the name which the ancients gave it. It bears the fire unaltered, not parting with its colour, nor becoming at all paler by it. It is only found in the East-Indies, and there but very rarely.

CARBUNCLE, or **ANTHRAX**, in surgery, an inflammation which arises, in time of the plague, with a vesicle or blister, like those produced by burning. This inflammation, for the most part, terminates in a sphacelus, and putrifies the subjacent parts down to the bone, they becoming as black as a coal. A carbuncle always breaks out very speedily, even in the space of an hour or two, attended with heat and pain: as soon as it is opened, it discharges a livid sanies, or sometimes a limpid water: it is black within, which is a sign that the sphacelus has seized the subjacent parts, and is making its progress; but the putrid flesh in those who recover suppurates, and parts from the sound. The size of these pestilential blisters is various, more or less; as is also their number in the patient; for there is no part in the body which they do not infect, and they generally appear in company with buboes. See **BUBOE**.

Those carbuncles which rise in the face, neck, breast, or armpits, are observed to be of the worst kind; for they generally kill the patient.

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In the external treatment, some of the modern physicians use only scarification in this case, with very good success; others open the eruptions with a pair of scissars and having discharged the matter, they frequently wash the carbuncle with *sp. vin. campb.* or *sp. vin.* wherein has been digested a little theriaca; they afterwards apply a maturing cataplasm, which is to be continued till the carbuncle separates from the sound parts; then they cut it out at once.

CARBUNCLE, in heraldry, a charge or bearing, consisting of eight radii, four whereof make a common cross, and the other four a saltier.

CARCASE, in architecture, the shell or ribs of a house, containing the partitions, floors, and rafters, made by carpenters; or it is the timber-work, or as it were the skeleton, of a house, before it is lathed and plastered; it is otherwise called the framing.

CARCASE, or **CARCASS**, in the art of war, an iron-case or hollow capacity, about the bigness of a bomb, of an oval figure, made of ribs of iron, filled with combustible matters. The design of it is to be thrown out of a mortar to set houses on fire, and do other execution. It has two or three apertures through which the fire is to blaze.

CARDS, in gaming little pieces of fine thin pasteboard of an oblong figure, of several sizes, but most commonly in England three inches and half long, and two and a half broad, on which are painted several points and figures. Cards were first invented in France for the king's amusement, in 1391.

CARD, among manufacturers, an instrument or comb, composed of a great number of small pieces or teeth of iron wire, incurvated or bent, like a hook, near the middle, and fastened very closely together by the bases or feet in rows.

CARD-MAKING, the business of making cards for the manufacturers.

There are always two cards necessary in the operation of carding, and between which the materials to be carded are placed.

CARDAMINE, lady's smock, in botany, a genus of plants, the corolla of which, consisting of four petals, is oval, oblong, open, and terminating in erect unguis of double the length of the cup. The fruit is a long pod, of a compressed cylindric shape, composed of two valves, and containing two cells, wherein are several roundish seeds.

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CARDAMOM, in the materia medica, a dried fruit or pod, brought from the East Indies; divided internally into three cells, in each of which are contained two rows of triangular seeds, of a brownish colour on the outside and white within. They are distinguished by the epithets *major* and *minor*.

CARDAMOMUM Minor, the lesser cardamom, has short triangular husks, scarce half an inch in length; the produce of a plant with reed-like stalks, and is described in the *Hortus Malabaricus*, under the name of *elettari*.

These seeds are an elegant and useful aromatic, of a grateful smell and flavour, very warm, yet not fiery, or subjeſt, like the spices of the pepper kind, to produce immoderate heat. The husks should be separated only at the time of use; for the seeds soon lose a part of their flavour, in being kept without this defence.

Tinctures of this spice, both in rectified and proof spirit, are more agreeable than the watery infusions: and proof spirit impregnated with its flavour by distillation, more agreeable than the simple distilled water. A tincture of six ounces of the seeds in a quart of proof spirit, and a spirituous water more lightly flavoured with them, by drawing off a gallon of proof spirit from four ounces, are kept in the shops, and occasionally made use of as pleasant warm cordials, and for flavouring other medicines. It is observed, that none of the aromatics answer, in general, so well as the tincture of this spice, for rendering mineral waters and other saline liquors acceptable to the stomach.

CARDAMOMUS Major, the greater cardamom, called also *grana Paradisi*. See *GRANA Paradisi*.

CARDIAC, an appellation given to such medicines as preserve or increase the strength of the heart, and by that means the vital forces, though they do not immediately work upon the heart, nor are particularly appropriated to the corroboration of that part. This effect they perform either by replenishing the exhausted vessels with good humours, or exciting motion when it is required: therefore nutritives duly chosen, with respect to particular constitutions, belong to this class, as well as astringent corroboratives and stimulants. All the modern dispensatories are full of cardiacs or cordials, both of the dry and liquid kind; but the best are those which remove the disorder, of which lowneſs of spirits is the consequence; and

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next to these is wine, which administers in proper quantities, and more or less diluted, as circumstances require, will generally answer better purposes than more pompous cordials, whilst it is less capable of doing mischief.

CARDIACA, mother-wort, a distinct genus of plants. It is perennial, grows wild in waste grounds, and flowers from the middle to the end of summer. This plant is said to be useful in disorders of the stomach proceeding from thick phlegm; to loosen the belly; to promote perspiration, urine, and the uterine purgations. Such, in effect, are the virtues which may be expected from its sensible qualities. The leaves and the tops have a moderately strong smell, not very agreeable; and a very bitter taste. In keeping for some time, or on boiling them in water, their smell is dissipated: the decoction, inspissated to the consistence of an extract, discovers to the taste a strong penetrating subfaline bitterness.

CARDIACUS PLEXUS, in anatomy, a plexus or piece of net-work, formed of a ramification of the par vagnum, or eighth pair of nerves.

CARDIALGIA, in physic, a pain at the mouth of the stomach, or heart-burn.

* **CARDIGAN**, the capital town of Cardiganshire, in South Wales, is seated on the river Teivy, on the Irish channel. It is governed by a mayor, thirteen aldermen, thirteen common-council-men, &c. Here are the ruins of a castle which was built by Gilbert de Clare, about the year 1160. Here was also a priory of black monks, subordinate to the abbey of Chertsey. It sends one member to parliament, and has two markets held on Tuesdays and Saturdays. Its fairs are February 13, and April 5, for small horses and pedlars ware. On September 8, and December 19, for small horses, pedlars ware, and cattle. It is two hundred and twenty-five miles west-north-west of London. Long. 4. 38. W. Lat. 52. 15. N.

* **CARDIGANSHIRE**, a county in South Wales, bounded on the north by Merionethshire and Montgomeryshire, on the east by Radnorshire and Brecknockshire, on the west by the Irish Sea, and on the south by Carmarthenshire. Its length is about forty-four miles, and its breadth near twenty. The air, as in other parts of Wales, varies with the soil. There are cattle bred in all parts; but they have neither wood nor coals of their own for fuel;

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fuel; they have rich lead mines and fish, in plenty, with fowls both tame and wild. The principal rivers are the Teivy, the Ridol, and the Istwith. This county has five market towns, viz. Cardigan, Aberystwith, Llanbadarnvawn, Llanbedar, and Tregaron; with twenty-seven parishes. It sends two members to parliament, one for the county, and one for Cardigan.

CARDINAL, in a general sense, an appellation given to things on account of their pre-eminence; as

CARDINAL VIRTUES, these are four, justice, prudence, temperance, and fortitude, upon which all the rest depend.

CARDINAL Points, in cosmography, the east, west, north, and south. See **POINT**.

CARDINAL WINDS, those that blow from the cardinal points.

CARDINAL SIGNS, in the zodiac, are Aries, Libra, Cancer, and Capricorn.

CARDINAL, an ecclesiastical prince, in the Romish church, being one who has a voice in the conclave at the election of a pope. The cardinals were originally nothing more than deacons, to whom was intrusted the care of distributing alms to the poor of the several quarters of Rome. They began to be called cardinals during the pontificate of St. Sylvester; an appellation derived to them from the cardinal priests, in the primitive church, being the chief priests of a parish, and next in dignity to the bishop. Afterwards this office grew much more considerable, and by small degrees arrived at its present height, in which it is the reward of such as have served the church and his holiness well; even princes thinking it no diminution of their honour to become members of the college of cardinals.

The cardinals compose the pope's council, or senate; and there is, in the Vatican, a constitution of pope John, which declares, that as the pope represents Moses, so the cardinals represent the seventy elders. It was pope Pius VI. who first decreed that the pope should be chosen only by the college of cardinals; though some carry up this right as high as Nicolas II. in 1058. The cardinals began to wear the red-hat, at the council of Lyons, in 1243. Till the time of Urban VIII. they were styled only Most Illustrious: afterwards, by a decree of that pope, they had the title of Eminence given them.

When his holiness has resolved to make a new promotion of cardinals, he calls

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a private consistory, in which he declares his intention to all the cardinals present, and names to them the persons he intends to honour with the red-hat: he then gives them eight or ten days to consider of it; at the expiration of which, he calls another consistory, in which he takes the opinion of each cardinal, who have all full and entire liberty of giving their voice pro or con. The cardinals are divided into three classes, or orders, consisting of six bishops, sixty priests, and fourteen deacons, making in all seventy; which constitute what they call the sacred college. The number of cardinal bishops has been always the same; but that of cardinal priests and deacons is not fixed. Till the year 1125, the college consisted of fifty-two or fifty-three. The council of Constance reduced them to twenty-four, and Sixtus IV. raised them again to fifty-three. The six cardinal bishops are those of Ostia, Porto, Sabina, Palestrina, Frascati, and Albano. The privileges of the cardinals are very great; they have an absolute power in the church during the vacancy of the holy-see: they have a right to elect the new pope; and are the only persons on whom the choice can fall. Most of the grand offices in the court of Rome are filled by cardinals. The dress of a cardinal is a red soutanne, a rochet, a short purple mantle, and the red-hat. When they are sent to the courts of princes, it is in quality of legates *a latere*; and when they are appointed governors of towns, their government is called by the name of legation. There are five legations, viz. those of Avignon, Ferrara, Bologna, Ravenna, and Perugia.

CARDIOSPERMUM, in botany, a genus of plants, the flower of which consists of four petals, and is cruciform; the fruit is a roundish trilobular capsule, containing a single cordated seed.

CARDO, in anatomy, the second vertebra of the neck.

CARDUUS, the thistle, in botany, a genus of plants, the compound flower of which is tubulous and uniform; the proper flower is monopetalous, of a funnel form, with a very small tube and erect limb, and divided into five linear equal segments. There is no pericarpium; but the cup is a little connivent, and contains solitary, vertically-ovated, quadrangular seeds, with two opposite angles obliterated, and crowned with a very long down.

CARDUUS Benedictus, holy thistle, a plant with rough, narrow, jagged leaves, terminal-

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terminating in soft prickles; and large, hairy, branched stalks, leaning to the ground; on the tops of which grow large, ically, prickly heads, including a number of yellow flosculi, which are followed by oblong striated seeds, inclosed in down. It is a native of Spain, and some of the islands of the Archipelago; and sown annually with us in gardens. The leaves of *carduus* have a penetrating bitter taste, not very strong, or very durable in the mouth; accompanied, in their recent state, with somewhat of an ungrateful flavour, which they soon lose in keeping. The herb, when thoroughly dried, should be hung up loosely in an airy place, being very subject, if pressed close, to rot or grow mouldy.

The virtues of this plant seem to be little attended to in the present practice. The nauseous decoction is sometimes used to excite vomiting, and a strong infusion to promote the operation of other emetics; but this elegant bitter, when extracted from the offensive parts of the herb, may be advantageously applied to other purposes. We have frequently observed excellent effects from a light infusion of *carduus*, in weakness of appetite and indigestion, where the stomach was injured by irregularities, and oppressed by viscid phlegm; nor have we found any one medicine of the bitter kind to fit so easily on weak stomachs, or to heat so little. These infusions, taken freely, promote the natural secretions; drank warm in bed, they commonly increase perspiration or excite sweat; and as they act with great mildness, not heating or irritating considerably, they have been used, in this intention, in acute as well as chronic diseases. The seeds of *carduus* are likewise considerably bitter, and have sometimes been used as sudorifics or diaphoretics, in the form of an emulsion.

CAREENING, in naval affairs, is used to heave the ship's side so low in the water that her bottom, being elevated above its surface on the other side, may be cleaned of any filth which adheres to it during a long voyage, as shells, ooze, seaweeds, &c. This is performed by applying flaming faggots, surze, or other such materials to the bilge; and the fire, thus catching on the tar, pitch, or other stuff, which had formerly been laid on the bottom to preserve it, continues burning till all the excrement is loosened and falls off from the bottom; after this it is covered with a composition of tallow, sulphur, turpentine, &c. and one side being cleaned in this manner, the other is heaved out for the same

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purpose. When a ship is laid on a careen, every thing is taken out of her: a ship is also said to careen when she lies down at sea, as pressed with a weight of sail.

CARET, among grammarians, a character marked thus Δ , signifying that something is added on the margin, or interlined, which ought to have been inserted where the caret stands.

CAREX, in botany, a genus of plants: in the male flower there is no corolla; in the female there are no petals; but the nectarium is of an ovato-oblong form, inflated, bidentated at the top: there is no pericarpium; but the nectarium growing large, contains a single ovato-acute triquetrous seed, with one of its angles less than the rest.

CARGO, in naval affairs, the merchant goods with which a ship is freighted, and proceeds from port to port.

CARIA, in zoology, a species of ant, common in the East-Indies, and much larger than those with us. They are very mischievous, living in large communities, and throwing up hills of earth five or six feet high.

CARICA, in botany, a genus of plants, the male flower of which is monopetalous, of a funnel-form, with a limb divided into five lanceolat-linear, obtuse obliquely spiral segments; the female flower is pentapetalous, the petals being lanceolato-linear obtuse on both sides, very long, erect below the middle, but above the middle bending outwards and downwards: the fruit is a very large berry, angulated with five furrows, having one cell, and containing numerous, ovated, sulcated, and tunicated seeds.

CARIES, in surgery, a disorder in which the bone, from whatever cause, is deprived of its periosteum; and having lost its natural heat and colour, becomes fatty, yellow, brown, and at length black; this is the first and lightest degree of the disorder.

CARIOUS, partaking of the nature of a caries. See **CARIES**.

CARLINA, the carline thistle, in botany, a genus of plants, with long, narrow, deeply jagged, and very prickly leaves, lying on the ground; in the middle of which grows a large roundish head, without any stalk, encompassed with smaller leaves, full of sharp prickles; the flower issues from the middle of the head.

* **CARMARTHEN**, the capital of Carmarthenshire, situated on the river Tero, 206 miles west of London: It gives title of Marquis to the family of Osborn, Duke

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duke of Leeds, and sends one member to Parliament.

CARLISLE, the capital city of Cumberland, on the south of the river Eden, between the Petterel on the east, and the Caude on the west. It is surrounded by a strong stone wall, and has a castle in the western part of it, and a citadel in the eastern part, built by Henry VIII. It flourished in the time of the Romans, as appears from the antiquities that are to be met with here. At the departure of the Romans this city was ruined by the Scots and Picts, and was not rebuilt till the year 680, by Egfrid, who encompassed it with a wall, and repaired the church. In the eighth and ninth centuries the whole country and city was ruined again, by the incursions of the Norwegians and Danes. In this condition it remained till the time of William Rufus, who repaired the walls and the castle, and caused the houses to be rebuilt. It was fortified by Henry I. as a barrier against Scotland. It was twice taken by the Scots, and afterwards burnt accidentally, in the reign of Richard II. The cathedral, the suburbs, and one thousand five hundred houses were destroyed at that time. It is at present in a good condition, and has three gates, the English on the south, the Scotch on the north, and the Irish on the west. It has two parishes, and two churches, St. Colibert, and St. Mary's, the last of which is the cathedral, and is separated from the town by a wall of its own. The eastern part, which is the newest, is a curious piece of workmanship. The choir has a stately east window forty-eight feet high, and thirty broad, adorned with curious pillars. The roof is elegantly vaulted with wood, and is embellished with the arms of England and France quartered, as also with Piercy's, Lucy's, Warren's, Mowbray's, and many others. The Picts wall, which was built across the country from Newcastle, terminates near this place. It was taken by the rebels, Nov. 15, 1745, and retaken by the duke of Cumberland, the 10th of December following. It is governed by a mayor, twelve aldermen, two bailiffs, &c. and has a considerable market on Saturday. The trade is chiefly in fustians. The fairs are August 26, for horned cattle and linen; September 19, for horses and horned cattle; and the first or second Saturdays after Oct. 10, for Scotch horned cattle. It is three hundred and one miles north-north-west of London. Long. 2, 29. W. Lat. 54. 45. N. It sends two members to parliament.

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CARMELITES, or WHITE-FRIARS, an order of our Lady of Mount Carmel, one of the four orders of mendicants. They pretend to derive their original from the prophets Elijah and Elisha. Their original rules contained sixteen articles, which confined them to their cells, and enjoined them to employ themselves day and night in prayer; prohibited the brethren having any property; enjoined fasting, from the feast of the exaltation of the Holy Cross till Easter, excepting on Sundays; abstinence at all times from flesh was enjoined; another article obliged them to perform manual labour; imposed a strict silence on them, from vespers till the tierce the next day; however, these constitutions have been in some respects altered. This order is so much increased, that it has at present thirty-eight provinces, besides the congregation of Mantoa, in which there are fifty-four monasteries, under a vicar-general; and the congregation of barefooted Carmelites in Italy and Spain, which have their peculiar generals. If a monk of this order lie with a woman, he is prohibited saying mass for three or four years, is declared infamous, and obliged to discipline himself publicly once a week: if he is again guilty of the same offence, his penance is doubled; and if a third time, he is expelled the order.

CARMINATIVES, in pharmacy, medicines appropriated to expel wind. Many seem to be strangers to this term; as it does not appear to carry in it anything expressive of the medicinal efficacy of those simples which pass under its denomination. And as those medicines now under this name, are of quick efficacy, and the consequences thereof, in many instances, surprising; and the most violent pains, sometimes arising from pent-up wind, immediately ceasing upon its dispersion; such medicines as give relief, in this case, are more properly termed carminatives, as if they cured by enchantment as the term seems to imply.

As to the cure, whatsoever will rarefy and render such collections of vapour thinner, must conduce to their utter discharge out of the body; and consequently remove their uneasiness, which arise from their detention. And as all those things that pass under this denomination are warm, and consist of very light subtiler parts, it is easy to conceive how a mixture of such particles may agitate and rarefy those stultencies, so as to facilitate their expulsion. If the obstruction be not great, the rarefaction

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faction of the wind, upon taking such a medicine, is often so sudden, and likewise its discharge, that it goes off like the explosion of gunpowder.

CARMINE, a beautiful crimson colour, formed of the tinging substance of cochineal, brightened with aquafortis by a process similar to that used for dying scarlet in grain. It is of great advantage in painting, as well in water as varnish, both on account of its beauty and standing well; but it will not mix with oil so as to have the due effect in that kind of painting.

The superiority of the French carmine, as well as of the scarlet dye, has been attributed to some qualities in the air and water of France; but nothing is more absurd than this supposition, as the air has very little concern in the production of carmine; and the qualities of the water, if different, might be artificially changed. But the difference itself betwixt the English and French carmine, which does not lie in the beauty of the colour, but in its durability and fixed nature, clearly evinces a diversity in the preparation: and leaves no room to doubt, but that the carmine might be equally well made in this country, if we were thoroughly masters of the art. At present we buy of France the far greatest part of what is consumed, which is more than can be easily imagined, till we recollect how frequent the use of red is worn among the English ladies; and that this is almost the only substance used in this country as a red paint for living faces.

* **CARNARVON**, a borough town of Carnarvonshire, in North Wales, situated near the sea, opposite to Anglesea, 8 miles south-west of Bangor, and 251 north-west of London. It gives title of marquis to the family of Bridges, duke of Chandos, and sends one member to parliament.

CARNATION, in botany, a name given to several species of caryophyllus, or pink, on account of their beautiful flesh-colour.

Spanish **CARNATION**, a name sometimes used for the poinciana of botanists.

CARNATION Colour, among painters, is understood of all the parts of a picture, which represent flesh, or which are naked and without drapery.

The various colouring for carnations, may be easily produced, by taking more or less red, blue, yellow, or bistre, whether for the first colouring, or for the finishing: the colour for women should be bluish; for children a little red, both fresh and

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gay; and for men it should incline to yellow, especially if they are old.

CARNELIAN, sarda, in natural history, a precious stone, of which there are three kinds, distinguished by three colours, a red, a yellow, and a white. The finest carnelians are those of the East-Indies; but there are very beautiful ones found in the rivers of Silesia and Bohemia; and we have some tolerable ones in England. Though the ancients have recommended the carnelian as an astringent, and attributed a number of fanciful virtues to it, we know no other use of the stone, than the engraving seals on it, to which purpose it is excellently adapted, as being not too hard for cutting, and yet hard enough not to be liable to accidents, to take a good polish, and to separate easily from the wax.

CARNIVAL, or **CARNAVAL**, a time of rejoicing, a season of mirth, observed with great solemnity by the Italians, particularly at Venice, holding from Twelfth-day till Lent.

CARNIVOROUS, an appellation given to those animals which naturally feed on live flesh.

CARNOSITY, a term sometimes used for an excrescence, or tubercle, in the urethra.

CAROB-TREE, in botany, a genus of plants, the fruit of which is a pod of about a span long, of a flattish figure, containing a brown coloured sweet pulp, which is used by the Egyptians and Arabians as sugar. The tree is found wild also in some of the southern parts of Europe: it is raised among us in the gardens of the curious, but does not in this climate ripen its fruit. The pulp of the carob is dissolved more effectually by water than by spirit. The watery extracts more agreeable than the spiritous.

* **CAROLINA**, including Georgia, lies between thirty-one and thirty-six degrees of north latitude. It is bounded on the east by the Atlantic ocean; on the north by Virginia; on the south by Florida; and on the west by the Mississippi. In 1663, king Charles II. made a grant of Carolina to several lords and gentlemen, from Virginia to thirty-one degrees of latitude, and westward as far as the South Sea, reserving a quit-rent of twenty marks yearly. In 1728, the proprietors thought fit to sell their right to his majesty king George II. which agreement was confirmed by act of parliament, reserving an eighth part to lord Carteret, now lord Granville.

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In 1732 a charter was granted to trustees for making a settlement in that part of Carolina now called Georgia, including all that country which lies from the northern stream of the Savanna river along the coast, to the most southern stream of Atalamaha river, and west from the mouths of the said rivers respectively, in direct lines to the South Sea. This country is seated between the extremities of heat and cold, though the heat is more troublesome in summer than the cold in winter; their winters being very short, and the frosty mornings frequently succeeded by warm days. The air is generally serene and clear the greatest part of the year. The great rains are in winter, though they are not without heavy showers at midsummer; add to these the constant dews that fall in the night, which refresh the ground, and supply the plants with moisture. In North Carolina the north-west winds in the winter occasion very severe weather, but they are of short continuance. The depth of winter is towards the latter end of February, and then the ice is not strong enough to bear a man's weight. The king appoints a governor, who, with two houses instituted in imitation of the lords and commons in England, have the management; however they are to make no laws but what are agreeable to the mother-country. They export large quantities yearly of rice, pitch, tar, turpentine, deer-skins, and timber for building; cypress, cedar, salisfras, oak, walnut and pine. Besides these they are able to send out beef, pork, tallow, hides, furs, wheat, peas, potatoes, honey, bees-wax, myrtle-wax, tobacco, snake-root, cotton, several sorts of gum and medicinal drugs. The deer-skins are bought of the Indians with vermilion, lead, gunpowder, coarse cloth, iron, and spirituous liquors. As yet they have not a sufficient number of handicraftsmen, which renders labour very dear, and a supply of cloaths from England necessary. The aspect of the country is very fine, being adorned with beautiful rivers and creeks, and the woods with lofty timber, which afford delightful and pleasant seats for the planters, and renders the fencing their lands very easy. They have plenty of fish, wild fowl, and venison, besides other necessaries which this country produces naturally. The planters and their families that are born here, are troubled with few distempers; and are generally tall, well-made, and active. The women who are not exposed to the weather are remarkable fair and handsome, with

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fine eyes. They marry at thirteen or fourteen, and where there is no clergyman the ceremony is performed by a justice of the peace. They are very fruitful, have easy labours, and the children at nine months old are able to run about the house. Both sexes, as well young as old, are very dextrous in paddling and managing the canoes, being bred to it from their infancy. The religion of the planters is that of the church of England; but, as there is liberty of conscience, here are dissenters of all sorts. This country is divided into North and South Carolina, and Georgia, each of which is under a particular Governor. Charles-Town is the capital of the whole country.

CAROLINE, queen to George II. died of a mortification in her bowels, November 20, 1737, aged 54.

CAROLINE, princess, daughter of Geo. II. died December 28, 1737.

CAROLUS, an English broad piece of gold, struck under king Charles I. Its value has of late been at twenty-three shillings sterling, though at the time it was coined, it is said to have been rated at twenty shillings.

CAROTEL, in commerce, an uncertain weight or quantity of goods; thus a carotiel of cloves is from four to five hundred weight; of currants, from five to nine; of mace, about three hundred; of nutmegs, from six to seven hundred and a half.

CAROTIDS, in anatomy, two arteries of the neck, which convey the blood from the aorta to the brain, one called the right carotid, and the other on the left. All the ramifications of the carotids are covered by the pia mater, in the duplicature of which they are distributed, and form capillary, reticular textures, in great numbers; afterwards they are lost in the inner substance of the brain. See **ARTERA**.

CARP, in ichthyology, the English name of the cyprinus, with four cirri, or beards, and the third ray of the back-fins armed with small hooks. The carp is generally taken for the queen of fresh-water fish: it is subtle, and lives the longest of all fish, except the eel, out of water. It is observed to breed several months in one year; for which reason you hardly ever take either male or female without milt or spawn; but they breed more naturally in ponds than in running water, and in the latter very seldom. In the places they frequent, their stock is innumerable. To make a carp fat and very large, rake all the sides

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your pond, when the water is fallen away, about April, and sow any seeds, the growth of which, when winter comes and overflows it, will feed them, and make them very fat.

CARPENTER, an artificer in wood designed for the purposes of building houses, &c.

SHIP-CARPENTER, a person employed in building or repairing ships. See *SHIP-BUILDING*.

CARPENTRY, the art of cutting, framing, and joining wood for the use of building. It is one of the arts subservient to architecture, and is divided into house-carpentry and ship-carpentry: the first is employed in raising, roofing, flooring of houses, &c. and the second in the building of ships, &c. The rules in carpentry are much the same with those of joinery; the only difference is, that carpentry is used in the larger coarser work, and joinery in the smaller and curiously. See *JOINERY*.

CARPET, a sort of covering of stuff, &c. wrought with the needle, or in a loom; forming part of the furniture of a house, and is commonly spread over tables, or upon the floor. Persian and Turkey carpets are most esteemed; though at Paris there is a manufactory after the manner of Persia, where they make them little inferior, not to say finer, than the true Persian carpets. There are also carpets of Germany, some of which are made of wool-ten stuffs, as ferges, &c. and called square carpets; others are made of wool also, but wrought with the needle, and often embellished with silk; and lastly, there are carpets made of dog's hair. We have likewise carpets made in England equal to any brought from the East.

CARPOBALSAM, in the materia medica; the fruit of the tree which yields the true oriental balsam.

CARPUS, the wrist, in anatomy. See *WRIST*.

CARR, among the ancients, a kind of throne mounted on wheels; used in triumphs and other solemn occasions.

CARRAC, the name of the vessels employed by the Portuguese in the East-India and Brazilian trade; they are very large, and fitted for fighting, as well as burden.

CARRIAGE, a vehicle serving to convey persons, goods, merchandizes, from one place to another. Water-carriages, in general, are those vessels which serve to carry persons or merchandize by sea, rivers, lakes, &c. as ships, barks, wherries, barges, lighters, boats, &c.

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Land-carriages are machines invented to carry more conveniently persons or goods. Those mostly used in Europe are coaches, chariots, calashes, berlins, waggon with four wheels, chaises, carts, and drays with two wheels, all drawn by horses, mules, buffaloes, oxen, &c. and in Lapland and Siberia, by rein-deer.

CARRIAGE, of a Cannon, the frame on which it is mounted, serving to point it in shooting, or to carry it from one place to another. It is mounted on two wheels; but on a march has two fore-wheels, with fenders added. The principal parts are the cheeks, transoms, bolts, plates, trais, bands, bridge, bed, books, trunnion holes, and cap-squares.

WHEEL CARRIAGE, a cart made on purpose for carrying mortars and their beds from place to place.

TRUCK CARRIAGE, two short planks of wood supported on two axle-trees having four trucks of solid wood for carrying mortars or guns upon batteries, where their own carriages cannot go. They are drawn by men.

CARROT, *Daucus*, in botany, a genus of plants.

It hath, for the most part, a fleshy root: the leaves are divided into narrow segments: the petals of the flowers are very unequal, and shaped like an heart; the umbel, when ripe, is hollowed, and contracted, appearing somewhat like a bird's nest: the seeds are hairy, and in the shape of rice.

Carrots are propagated at two or three different seasons, or sometimes oftener, where people are fond of young carrots through all the summer months. The first season for sowing the seed is soon after Christmas, if the weather is open, which should be in warm borders, under walls, pales, or hedges: but they should not be sown immediately close thereto; but a border of lettuce, or other young salad-herbs, of about a foot wide, should be next the wall, for otherwise they would run up to seed, without making any tolerable roots. They delight in a warm, light, sandy soil, which should be dug pretty deep, that the roots may the better run down; chuse a calm day to sow the seed, for if the wind blows, it will be impossible to sow it equal; for the seeds being very light, will be blown into heaps.

When the plants are come up, you shall hoe the ground with a small hoe about three inches wide, cutting down all young weeds, and separating the plants to four

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inches distance each way, that they may get strength; and in about three weeks after, when the weeds begin to grow again, you should hoe the ground over again a second time, and separate the plants to a greater distance.

In about three weeks or a month after, you must hoe them a third time, and if they are to grow large before they are pulled up, they should be left eight or ten inches distant every way.

The second season for sowing the seeds is in February, on warm banks situated near the shelter of a wall, pale, or hedge; but those which are intended for the open large quarters should not be sown before the beginning of March, nor should you sow later than the end of the same month; for those which are sown in April or May, will run up to seed before the roots have any bulk, especially if the weather should prove hot and dry.

In July you may sow again for an autumnal crop; and in the end of August you may sow some to stand the winter; by which method you will have early carrots in March, before the spring sowing will be fit to draw; but these are seldom so well tasted, and are often very tough and sticky. Many people mix several other sorts of seeds, as leek, onion, parsnip, raddish, &c. amongst their carrots, and other plants beans, &c. but in my opinion, neither of these methods are good; for if there is a full crop of any of these plants, there can be no room for any thing else amongst them; so that what is got by one is lost by the other: and besides, it is not only more slightly, but better, for the plants of each kind to be sown separate; and also by this means your ground will be clear, when the crop is gone, to sow or plant any thing else; but when three or four kinds are mixed together, the ground is seldom at liberty before the succeeding spring: besides, where beans, or any other tall growing plants, are planted amongst the carrots, it is apt to make them grow more in top than root: so that they will not be half so large as if sown singly without any other plants amongst them. *Miller's Gardener's Diet.*

The Flemings have long fed their cattle with carrots; though it is but of late years that this root has been cultivated for that purpose in the fields of England: nor does this useful and profitable practice extend even now to more than a few parts of this country; though there is scarce any root yet known, which is more heartening

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food for most sorts of animals; or which better merits the husbandman's attention; as one acre of carrots, well planted, will fatten a greater number of sheep, or bullocks, than three acres of turnips, and at the same time their flesh will be firmer, and better tasted. Horses are extremely fond of this food, and there is not any better for hogs. These roots have also been of such excellent service to deer, in parks, that when numbers of these valuable creatures have perished elsewhere, through want in very hard winters, when there has been an extreme scarcity of their usual food; those that have been fed with carrots have kept their flesh all the winter, and, upon the growth of the grass in the spring, have been fat early in the season. This is not an inconsiderable advantage, in places where the grass is generally backward in its growth.

This plant has also a very great superiority over turnips: namely, that the crop is not so liable to fail; for as the carrots are sown in the spring, the plants generally come up well; and unless the months of June and July prove very bad, there is no danger of their succeeding, whereas turnips are frequently destroyed by the fly at their first coming up; and in dry autumns they are attacked by the caterpillars, which lay waste whole fields in a short time. But carrots are not preyed upon by either of these vermin. Every farmer who has a stock of cattle or sheep should therefore always have good store of these roots. His land will be fit for them, if it be in the proper tilth.

CARROUSAL, a course of chariots and horses, or a magnificent entertainment exhibited by princes on some public rejoicing. It consists in a cavalcade of several gentlemen richly equipped, after the manner of ancient cavaliers, divided into squadrons, meeting in some public place, and practising jousts, tournaments, &c.

CART, a land-carriage with two wheels, usually drawn with horses, to carry heavy goods, &c. from one place to another. Carts, in London and Westminster, are not to carry more than twelve sacks of meal, or one chaldron of coals, on pain of forfeiting one of the horses. The wheels are to be of a certain thickness, and without iron; and if any person ride in a cart, not having another to guide it, he shall forfeit ten shillings.

CARTEL, an agreement between two states for the exchange of their prisoners of war. See *PRISONER of War*.

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CARTHAMUS, bastard-saffron, in botany. It is an annual plant, a native of Egypt, and cultivated in large quantities in some parts of Germany, on account of the uses of its flowers in dying. It is sometimes raised among ourselves; but the seeds, which are the part that has been chiefly made use of in medicine, seldom come to perfection in this climate.

The seeds of *Carthamus* have been celebrated as a gentle cathartic, in doses of a dram or two in substance, and six or eight drams in emulsion; but as they operate very slowly, and are apt, especially when given in substance, to occasion nausea, flatulencies, and distensions of the stomach; their use has long been laid aside, and the colleges, both of London and Edinburgh, have now discarded them from their catalogues of officinals.

CARTHUSIANS, a religious order, founded in 1080, by one Bruno. Their rules are very severe. They are not to go out of their cells, except to church, without leave of their superior; nor to speak to any person without leave. They must not keep any portion of their meat or drink till next day: their beds are of straw, covered with a felt; their cloathing two hair-cloths, two cowls, two pair of hose, and a cloak, all coarse. In the refectory they are to keep their eyes on the dish, their hands on the table, their attention on the reader, and their hearts fixed on God. Women are not allowed to come into their churches.

CARTILAGE, in anatomy, a pearl-coloured substance, which covers the extremities of bones joined together by moveable articulations, increases the volume of some of them after the manner of epiphyses, unites others very closely together, and has no immediate adhesion or connexion with others. The substance of cartilages is more tender, and less brittle, than that of bones; but with age they sometimes grow so hard as to become perfectly bony. They are pliable and elastic, and capable of restoring themselves after having been compressed, or bent to a certain degree; but, when bent beyond that degree, they break.

CARTILAGINOUS, belonging to, or partaking of, the nature of a cartilage.

CARTILAGINOUS Fibres, those with cartilaginous fins, constitute a class or order of fishes, otherwise called chondropterygious. See **CHONDROPTERYGIUS**.

CARTON, or **CARTOON**, in painting, a design drawn on strong paper, to

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be afterwards calked through, and transferred on the fresh plaster of a wall to be painted in fresco. Carton is also used for a design coloured, for working in mosaic, tapestry, &c. The cartons were formerly at Hampton Court, but now at the queen's palace, are designs of Raphael Urbin, intended for tapestry.

CARTOUCHE, in architecture and sculpture, an ornament representing a scroll of paper. It is usually a flat member, with wavings, to represent some inscription, device, cypher, or ornaments of armoury. They are, in architecture, much the same as modillions; only these are set under the cornice in wainscoting, and those under the cornice at the eaves of a house.

CARTOUCHE, in military affairs, a case of wood, about three inches thick at the bottom, girt with marlin, holding about four hundred musket-balls, besides six or eight balls of iron, of a pound weight, to be fired out of a hobit, for the defence of a pass, &c.

A cartouche is sometimes made of a globular form, and filled with a ball of a pound weight: and sometimes it is made for the guns, being a ball, of half a quarter pound weight, according to the nature of the gun, tied in form of a bunch of grapes, on a tompion of wood, and coated over. These were used in the room of partridge shot.

CARTOUCHE is also used to denote the same as a cartridge. See **CARTRIDGE**.

CARTRIDGE, in military affairs, a case of pasteboard or parchment, holding the exact charge of a fire-arm. Those for muskets, carabines, and pistols, hold both the powder and ball for the charge; and those of cannon and mortars are usually in cases of pasteboard or tin; sometimes of wood, half a foot long, adapted to the caliber of the piece.

CARTRIDGE, in architecture. See **CARTOUCHE**.

CARTRIDGE-BOX, a case of wood or turned iron, covered with leather, holding a dozen musket cartridges. It is wore upon a belt, and hangs a little lower than the right pocket-hole.

CARUI, or **CARAWAY**, in botany, an umbelliferous plant. It is a native of the northern climates; in this kingdom it is rarely found wild; but commonly cultivated in gardens for culinary and confectionary as well as medicinal purposes. It is biennial.

CARVING, cutting in wood. See **SCULPTURE**.

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CARUNCULA, in anatomy, a little piece of flesh, and applied to several parts of the body, thus:

CARUNCULA LACRYMALIS, a little eminence situated in the larger angle, or canthus of the eye, where there are also sometimes hairs and certain little glands. According to some anatomists, they help to keep the two puncta open when the eyes are shut.

CARUNCULÆ MYRTIFORMES, fleshy knobs about the size of a myrtle-berry, which owe their origin to the breaking of the hymen, and are not to be found in subjects in which that membrane exists entire. They are two, three, or four in number, and are placed where the hymen was.

CARUNCULÆ PAPILLARES, or **MAMILLARES**, little protuberances on the inside of the pelvis of the kidneys. See **PELVIS** and **KIDNEY**.

CARUNCLES, in the urethra, proceeding from a gonorrhoea, or an ulceration of the urethra, may be removed by introducing the bougie or wax-candle. See **Medicinal CANDLE**.

CARUS, in medicine, a sudden deprivation of sense and motion, affecting the whole body.

If this carus or sopor oppresses respiration to so violent a degree, as the patient cannot breathe, without great efforts, as those who more under a deep sleep, it is called apoplexy; the solution of which is generally succeeded by a paraplegy; but a carus is generally followed by a good state of health. It is sometimes taken for a heavy and profound sleep; from which it is difficult to be raised. This carus differs little from a lethargy. See **LETHARGY**.

CARYATIDES, or **CARIATES**, in architecture, a kind of order of columns or pilasters, under the figure of women, dressed in long robes, after the manner of the Carian people, and serving instead of columns. The Caryatides should always have their legs pretty close to each other, and even across, or one athwart the other; their arms laid flat to their bodies, or to the head; and as little spread as possible; when they are insulated, they should never have any great weight to support; and they ought always to appear in characters proper to the place they are used in.

CARYOCOSTINUM, in pharmacy, an electuary prepared of cloves, white colts, ginger, cummin-seeds, &c. much recommended for purging cholera, and

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breaking away obstructions of catenetic constitutions; and an excellent purge for strong people.

CARYOPHYLLATA, **AVENS**, or herb-bener, a roughish perennial plant, which grows wild in woods and hedges, and is found in flower greatest part of the summer.

The root of the avens has been employed as a gentle hyptic, corroborant, and stomachic; and for these intentions continues not undervalued, of some esteem in foreign countries, though very little regarded among us.

CARYOPHYLLUS, the pink, in botany. See **DIANTHUS**.

CARYOPHYLLUS AROMATICUS, the clove tree, common in several islands of the East Indies. The cloves, which are the only part known to us, are properly the cups of the unopened flowers. They are said to be cured by exposing them to smoke, and afterwards drying them in the sun.

The clove has a strong agreeable smell, and a bitterish, hot, very pungent taste: it is one of the hottest and most acrid of the substances of the aromatic class, and as such is often used, not only internally, but as an external stimulant. The fruit called anophyllus, has the same kind of flavour with the clove itself; but being far weaker, in smell as well as in taste, it is very rarely applied to any medicinal purposes, and is now scarcely ever to be met with in the shops.

The clove is remarkably disposed to imbibе humidity; and when robbed of its active parts, by infusion in menstrua or distillation, and afterwards mixed with fresh cloves, it regains from them a considerable share both of taste and smell. The Dutch, through whose hands this spice is brought to us, have often practised this abuse; which, however, may be easily discovered; for those cloves which have once lost their virtue, continue always not only weaker than the rest, but likewise of a much paler colour.

CARYOPHILUS RUBER, the clove july-flower, or gillflower, in botany, is the name of a perennial plant, said to be a native of Italy.

Several varieties of these flowers are cultivated in gardens; but the sort principally used in medicine are of a deep crimson colour, and a pleasant aromatic smell, somewhat resembling that of the clove described in the preceding article. They are chiefly valued for the fine smell, which

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which is readily extracted by infusion in water, and dissipated even by light cotion. Three pounds of the fresh flowers, clipped from their heels, communicate, by infusion in a close vessel for a night, a grateful and moderately strong smell, and a deep red colour, to eight or nine pints of water; which, with a proper quantity of fine sugar, forms a very agreeable syrup.

CASCADE, a steep fall of water.

CASCANE, in fortification, holes in form of wells, serving as entries to galleries to give vent to the enemies mines.

CASCARILLA. See **ELEUTHERIA**.

CASE, *Casus*, among grammarians, implies the different inflexions or terminations of nouns, serving to express the different relations they bear to each other, and to the things they represent. The English and many other modern languages express the various relations, not by changes in the terminations, as the ancients, but by the apposition of articles; it is certainly wrong to say, that of a father is the genitive case of father, and to a father the dative; for of and to are no part of the word father, they are only articles or modifications, which shew the different relation of the word father.

CASE, among printers, a sloping frame, divided into several compartments, containing a number of types or letters of the same kind. From these compartments the compositor takes out each letter as he wants it, to compose a page or form. Thus they say a case of Pisa, of Long Primer, of Greek, &c.

CASE-HARDENING, a method of preparing iron, so as to render its outer surface hard, and capable of resisting any edged tool. It is a lesser degree of steel-making.

CASE-SHOT, in the military art, musket-ball, stones, old iron, &c. put into cases, and shot out of great guns.

CASEMENT, or **CASE-MATE**, in architecture, a hollow moulding, which some architects make one sixth of a circle, and others one fourth.

CASERN, in fortification, lodgings built in garrison-towns, generally near the rampart, for lodging the soldiers of the garrison. There are usually two beds in each casern for six soldiers to lie, who mount the guard alternately; the third part being always on duty.

CASH, in the commercial style, the stock of money which a merchant, trader, or banker, has at his disposal in order to trade.

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CASH-BOOK. See **BOOK-KEEPING**.
CASHEW-NUT, the fruit of the acajou-tree.

CASHIRE, one who is intrusted with the cash of some public company. See **CASH** and **COMPANY**.

CASIA, in botany. See **OSYRIS**.

CASING of *Timber-work*, among builders, the plastering a house all over on the outside with mortar, then striking it while wet by a ruler with the corner of a trowel, to make it resemble the joints of free-stone.

CASK, a vessel for preserving liquors of divers kinds, and sometimes dry goods, as sugar, &c.

A cask of sugar is a barrel of that commodity, containing from eight to eleven hundred weight. A cask of almonds is about three hundred weight.

A cask in staves, that of which all the staves are ready prepared, and want only to be joined and hooped. They are often shipped thus on board the vessels designed for the American islands, because they take less room, and can be easily made up there.

* **CASPIAN SEA**, a large lake in Asia, which is called a sea, because its waters are salt. It is five hundred and seventy-seven miles long, reckoning sixty to a degree. The narrowest part from east to west is one hundred miles over, and the broadest three hundred and sixty. All geographers, till very lately, supposed that several rivers ran into it on the east side, which are now known to fall into the Aral, another vast lake, but much more inconsiderable than the Caspian Sea. However, it receives the Jamba, the Yaic, the Volga, the Kur, and several other rivers which run from the mountains of Georgia, and the adjacent countries. These are on the north or west side. On the west there are none; for the river is dried up, or lost in the sand, and the Sihun and Gihun, so often mentioned in the oriental writers, run into the lake Aral. We have therefore no need of a pretended communication between this sea and the ocean, for accounting why it rises no higher. The navigation on this sea is often dangerous, from the boisterous winds, and the shallows near the shores. It has great plenty of fish, which some pretend are better than in the ocean. Long. 49. to 55. E.

* **CASSANDRA**, in fabulous history, the daughter of Priam and Hecuba; she was beloved by Apollo, who consented to give her the spirit of prophecy, if she would

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would consent to the gratification of his passion. Cassandra seemed to accept the proposal, but had no sooner obtained that gift, than she laughed at the tempter, and broke her word with him. Apollo revenged himself by causing no credit to be given to her predictions; for which reason, she in vain prophesied the ruin of Troy. Ajax, the son of Oileus, having ravished her in the temple of Minerva, he was struck with thunder. She fell into the hands of Agamemnon, who loved her to distraction: but in vain did the predict that he would be assassinated in his own country.

CASSIA, *Caryophyllata*, the bark of a tree of the clove kind, from the island of Cuba, Jamaica, and other parts of the West-Indies; rolled up in quills, like cinnamon, but somewhat thinner, rougher on the outside, and of a darker rusty brown colour. This bark is a warm aromatic, nearly of the same kind of smell and taste with the clove spice, but weaker; and with a little admixture, as it were, of the cinnamon flavour. In distillation with water, it yields a very small portion of essential oil nearly similar in flavour to oil of cloves, but more pungent than the genuine oil of that spice. A bark of the same kind is sometimes brought from the East-Indies under the name of culilawan, or culilawan; a Malaccan compound word, of which the Latin *cortex caryophylloides*, or clove bark, is said to be a translation. That distinguished in Europe by the name of calilawan, is thicker than the other, and in colour approaches somewhat more to cinnamon, but scarcely differs in smell or taste.

CASSIA *Fistularis*, a hard, woody cylindrical pod of a tree resembling the walnut, which grows spontaneously in Egypt and the warmer parts of the East-Indies, and has been thence introduced into the West.

CASSIA *Lignea*, the bark of a tree of the cinnamon-kind, brought from the East-Indies; exactly resembling cinnamon in appearance, but distinguishable by its breaking short or smooth, while cinnamon breaks fibrous or shivery, like wood.

This bark resembles cinnamon in aromatic flavour as well as in external appearance; but differs in being weaker, or containing less active matter, and in its abounding with a viscous mucilaginous substance. Chewed, it dissolves as it were in the mouth into a kind of slime: pow-

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dered and boiled in water, it renders a considerable quantity of the fluid thick and glutinous, so as to concreate on cooling into the consistence of a jelly. In the form of spirituous tincture, or spirituous extract, or distilled water, or essential oil, it appears very like cinnamon. By the ancients, it was employed as a succedaneum to cinnamon, of which it was reckoned equivalent to half its own quantity. At present it is not unfrequently mixed with that spice in the shops, but is scarcely ever made use of under its own name. *Lewis's History of the Materia Medica.*

CASSINE, the cassia-berry-tree, in botany, a genus of plants, which is used in South-America in the same manner as tea.

* **CASSIOPE**, in fabulous history, the wife of Cepheus, king of Ethiopia, and mother of Andromeda. On her boasting she was more beautiful than the Nereids, those goddesses were so provoked, that they desired Neptune to revenge them; on which he sent into the country of Cepheus, a sea monster, which committed dreadful ravages. To put a stop to which, Andromeda was exposed to be devoured by this monster; but being delivered by Perseus, he prevailed on Jupiter to place Cassiope in the heavens, among the constellations.

CASSIOPEIA, in astronomy, a constellation of the northern hemisphere, situated opposite to the great bear on the other side of the pole. The stars of this constellation, in Ptolemy's catalogue, are thirteen; in Tycho's twenty-eight; and in Mr. Flamsteed's fifty-six. In 1572, a remarkable new star appeared in this constellation, surpassing Sirius or Lyra in brightness and magnitude.

CASSITERIA, in the history of fossils, a genus of crystals, which are of two kinds: the whitish pellucid cassiterion, and the brown cassiterion; the first is a tolerably bright and pellucid crystal, and seldom subject to the common blemishes of crystal. It is of a perfect and regular form, in the figure of a quadrilateral pyramid; and is found in Devonshire and Cornwall principally. The brown cassiterion is like the former in figure; it is of a very smooth and glossy surface; and is also found in great plenty in Devonshire and Cornwall.

CASSOCK, or **CASSULA**, a kind of robe or gown, wore over the rest of the habit, particularly by the clergy.

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CASSOWARY, in ornithology, a genus of birds, of the order of the gallinæ.

There is only one species of this genus, which is a robust, large, and thick bird, measuring four feet and an half when it stretches out its neck.

CASSMUNAR, in the materia medica, the root of an East-Indian plant, of which we have no certain account; brought over in irregular slices of various forms, some cut transversely and others longitudinally.

This root was introduced some time ago by Marlot, as a medicine of uncommon efficacy in hysteric, epileptic, paralytic, and other nervous disorders. At present it is sometimes employed as a stomachic; but its use is not yet become so general as it seems to deserve. It is an elegant mild aromatic, moderately warm, lightly bitterish; in smell somewhat resembling ginger.

CASTANEA, the chestnut-tree, in botany, a genus of trees, of which M. Tournefort has enumerated four, and Mr. Miller five species.

These trees are propagated by planting them in February, in beds of fresh, undunged earth: the best nuts for sowing are such as are brought from Portugal and Spain, and are commonly sold in winter for eating, provided they are not kill-dried. Those of the growth of England, are full as good to sow, for timber or beauty, as any of the foreign nuts, though their fruit are much smaller; these should be preserved till the season for sowing, in sand, where mice, or other vermin, cannot come to them, otherwise they will soon destroy them. Before you set them, it will be proper to put them into water, to try their goodness, which is known by their ponderosity; those of them that swim upon the surface of the water should be rejected, as good for nothing; but such as sink to the bottom you may be sure are good. In April these nuts will appear above ground; you must, therefore, observe to keep them clear from weeds, especially while young: in these beds they may remain for two years, when you should remove them into a nursery, at a wider distance. The best season for transplanting these trees is either in October, or the latter end of February; but October is the best season: the distance they should have in the nursery, is three feet, row from row, and one foot in the rows. After having remained three or four years in the nursery,

they will be fit for transplanting, either in rows, for avenues to a house, or in quarters, for wilderness plantations; but if you intend them for timber, it is much the better method to sow them in furrows, as is practised for oaks, &c. and let them remain unremoved; for these trees are apt to have a downright tap root, which being hurt by transplanting, is often a check to their upright growth, and causes them to shoot out into lateral branches, as is the case with the oak, walnut, &c.

CASTELLAN, the name of a dignity or charge in Poland: the castellans are senators of the kingdom, but senators only of the lower class, who, in diets, sit on low seats, behind the palatines, or great senators. They are a kind of lieutenants of provinces, and command a part of the palatinate under the palatine.

CASTING, in foundery, the running of a metal into a mold, prepared for that purpose.

CASTING of Lead, the using a frame, or mold, covered with sand, to cast the lead into sheets.

CASTING of Metals, of Letters, Bells, Figures, &c. See **FOUNDRY**.

CASTING in Sand, or Earth, the running of metals between two frames, or molds, filled with sand, or earth, wherein the figure that the metal is to take has been impressed *en creux*, by means of the pattern.

CASTING, among sculptors, the taking of casts of impressions, of figures, busts, metals, leaves, &c.

The method of taking of casts of figures and busts, as at present practised, is most generally by use of plaster of Paris, or, in other words, alabastr calcined by a gentle heat. The advantage of using this substance preferably to others, consists in this, that notwithstanding a slight calcination reduces it to a pulverine state, it becomes again a tenacious and cohering body, by being moistened with water, and afterwards suffered to dry; by which means either a concave or a convex figure may be given by a proper mold or model to it when wet, and retained by the hardness it acquires when dry: and from these qualities, it is fitted to the double use of making both casts, and molds for forming those casts. The plaster is to be had ready prepared of those who make it their business to sell it; and the only care is to see that it is genuine. The particular manner of making casts depends on the form of the

subject to be taken. Where there are no projecting parts, it is very simple and easy; as likewise where there are such as form only a right or any greater angle with the principal surface of the body: but where parts project in lesser angles, or form a curve inclined towards the principal surface of the body, the work is more difficult.

The first step to be taken is the forming the mold; which is, indeed, done by much the same means as the cast is afterwards made in it. In order to this, if the original or model be a bass relief, or any other piece of a flat form, having its surface first well greased, it must be placed on a proper table, or other such support, and surrounded by a frame, the sides of which must be at such a distance from it, as will allow a proper thickness for the sides of the mold. A due quantity of the plaster, that is, what will be sufficient to cover and rise to such a thickness as may give sufficient strength to the mold, as also to fill the hollow between the frame and the model, must be moistened with water, till it be just of such consistence as will allow it to be poured upon the model, which should be done as soon as possible: for it must not be delayed after the water is added to the plaster, which would otherwise concrete or set, so as to become more troublesome in the working, or unfit to be used. The whole must then be suffered to remain in this condition, till the plaster has attained its hardness; and then the frame being taken away, the preparatory cast or mold thus formed, may be taken off from the subject entire.

Where the model or original subject is of a round or erect form, a different method must be pursued; and the mold must be divided into several pieces: or if the subject consists of detached and projecting parts, it is frequently most expedient to cast such parts separately; and afterwards join them together.

Where the original subject or model forms a round, or spheroid, or any part of such round or spheroid, more than one half the plaster must be used without any frame to keep it round the model; and must be tempered, with water, to such a consistence, that it may be wrought with the hand like very soft paste: but though it must not be so fluid as when prepared for flat figured models, it must yet be as moist as is compatible with its cohering sufficiently to hold together: and being thus prepared, it must be put upon the

model, and compressed with the hand, or any flat instrument, that the parts of it may adapt themselves, in the most perfect manner, to those of the subject, as well as be compact with respect to themselves.

When the model is so covered to a convenient thickness, the whole must be left at rest till the plaster be set and firm, so as to bear dividing without falling to pieces, or being liable to be put out of its form by slight or violence; and it must then be divided into pieces, in order to its being taken off from the model, by cutting it with a knife with a very thin blade; and being divided must be cautiously taken off, and kept till dry: but it must be always carefully observed, before the separation of the parts be made, to notch them cross the joints, or lines of the division, at proper distances, that they may with ease and certainty be properly conjoined again: which would be much more precarious and troublesome without such directive marks. The art of properly dividing the moulds, in order to make them separate from the model, constitutes the greatest object of dexterity and skill in the art of casting; and does not admit of rules for the most advantageous conduct of it in every case. But we shall endeavour to explain the principles on which it depends, in such manner, that by a due application of them, all difficulties may at any time be surmounted, and an expertness, even of manner, acquired by a little practice. With respect to the case in question, where the subject is of a round or spheroidal form, it is best to divide the mold into three parts, which will then easily come off from the model: and the same will hold good of a cylinder or any regular curve figure.

The mold being thus formed, and dry, and the parts put together, it must be first greased, and placed in such a position that the hollow may lie upwards, and then filled with plaster, commixt with water, in the same proportion and manner as was directed for the casting the mold: and when the cast is perfectly set, and dry, it must be taken out of the mold and repaired, where it is necessary; which finishes the whole operation.

This is all that is required with respect to subjects where the surfaces have the regularity above-mentioned: but where they form curves, which intersect each other, the conduct of the operation must be varied with respect to the manner of taking the cast of the mold from the

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the subject or model; and where there are long projecting parts, such as legs or arms, they should as was observed before, be wrought in separate casts.

In the same manner figures, busts, &c. may be cast of lead, or any other metal, in the molds of plaster: only the expence of plaster, and the tediousness of its becoming sufficiently dry, when in a very large mass, to bear the heat of melted metal, render the use of clay, compounded with some other proper materials, preferable where large subjects are in question.

Casts of medals, or such small pieces as are of a similar form, may be made in plaster, by the method directed for bass relievos.

Indeed there is nothing more required than to form a mold by laying them on a proper board; and having surrounded them by a rim made of a piece of a card, or any other pasteboard, to fill the rim with soft tempered plaster of Paris: which mold, when dry, will serve for several casts. It is nevertheless a better method to form the mold of melted sulphur; which will produce a sharper impression in the cast, and be more durable than those made of plaster.

The casts of medals are likewise frequently made of sulphur, which being melted, must be treated exactly in the same manner as the plaster.

Casts may be made likewise with iron with very little additional trouble, provided it be prepared in the following manner.

"Take any iron bar, or piece of a similar form; and having heated it red-hot, hold it over a vessel containing water, and touch it very slightly with a roll of sulphur, which will immediately dissolve it, and make it fall in drops into the water under it. As much iron as may be wanted being thus dissolved, pour the water out of the vessel; and pick out the drops formed by the melted iron from those of the sulphur, which contain little or no iron, and will be distinguishable from the other by their colour and weight."

The iron will, by this means, be rendered so fusible, or easy, to be melted, that it will run with less heat than will melt lead and may be employed for making casts of medals, and many other such purposes, with great convenience and advantage.

* CASTLEHAVEN, earl of, beheaded for inviting, and even assisting people to commit rapes upon his lady, 1631.

CASTLE-WORK, service or labour done by inferior tenants for the building and upholding of castles of defence, towards which some gave their personal assistance, and others paid their contributions. This was one of the three necessary charges to which all lands among our Saxon ancestors were expressly subject.

CASTOR. See BEAVER and CASTOREUM.

* CASTOR and POLLUX, in pagan mythology. Jupiter in the form of a swan having an amour with Leda, the wife of Tyndarus, king of Sparta, she brought forth two eggs, each containing twins. From that impregnated by Jupiter proceeded Pollux and Helina, who were both immortal; from the other Castor and Clytemnestra; who were begot by Tyndarus were both mortal. They were all however called by the common name of Tyndaridæ. These two brothers entered into an inviolable friendship: they accompanied the other noble youths of Greece in the expedition to Colchis, in search of the golden fleece; but Castor being killed, Pollux obtained leave to share his own immortality with his brother, so that they are said to live and die alternately every day: for being translated into the skies they form the constellation Gemini, one of which stars rises as the other sets. These deities were esteemed propitious to navigation, for it is said that the Argonauts being endangered by a tempest, Orpheus offered vows for the safety of the ship, when immediately two lambent flames appeared over the heads of Castor and Pollux, which appearance was succeeded by a calm. In succeeding times these fires, often seen by mariners, were considered as a favourable omen; but when one only was seen it was called Helena, and imagined to forebode some evil. Castor and Pollux were represented as two beautiful youths, completely armed, riding on white horses, with stars over their helmets.

CASTOREUM, CASTOR, a liquid substance found in the inguinal glands of the castor or beaver, a four-footed amphibious animal, frequent in several parts of Europe, and in North-America. The best castor comes from Russia, in large, round, hard cods; an inferior sort, smaller and moister, from Dantzick; the worst of all from New England, in longish thin cods. Russia castor has a strong smell, and a biting bitterish nauseous taste: the other sorts are weaker than that of Russia, yet more ungrateful. It is generally looked upon as one of the capital nervine, antispasmodic, and antihysteric medicines: its

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virtues have undoubtedly been much exaggerated: but though they are not near so great as they have by most writers been represented, they appear nevertheless to be considerable. The common dose is from two or three grains to a scruple; though it has been sometimes taken by drams, and these doses very often repeated.

Castor is usually joined in prescription with the deobstruent fetid gums, volatile alkaline salts, the volatile oily spirits, and other materials of similar intention. The volatile oily spirits are well adapted also as menstrua for dissolving the active matter of the castor, at the same time that they prove in many cases excellent additions to its virtue, as particularly in some hysteric disorders, and the several symptoms which accompany them: in this view, an ounce of Russia castor, and half as much asafetida, are digested about six days, in a close vessel, with a pint of the volatile spirit. *Lewi's Materia Medica.*

CASTRATION, in surgery, the operation of gelding.

CAT, *Felis*, a well known quadruped, of the order of the feræ, or beasts of prey. See **FELIS**.

CAT of the Mountain, *Catus Pardus*, an animal of the cat-kind, about the size of a mastiff, variegated with longitudinal black streaks on the upper-part of the body, and black spots on the under-part.

CATACAUSTICS, or **CAUSTICS**, in the higher geometry, are curves formed by reflected rays. The caustic of the circle is a cycloid, formed by the revolution of a circle along a circle. The caustic of the common cycloid, when the rays are parallel to the axis thereof, is also a common cycloid, described by the revolution of a circle upon the same base. The caustic of the logarithmic spiral is the same curve.

CATACHRESIS, in rhetoric, a trope which borrows the name of one thing to express another.

CATACOMB, a grotto or subterraneous place for the interment of the dead. The term is particularly used in Italy for a vast assemblage of subterraneous sepulchres, three leagues from Rome, in the Via Appia, supposed to be the sepulchres of the ancients. Others imagine these catacombs to be the cells wherein the primitive Christians hid themselves. Each catacomb is three feet broad, and eight or ten high, running in form of an alley or gallery, and communicating with one another. Some authors suppose them to have been the puticuli mentioned by Festus Pompeius, into which the Romans threw the bodies

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of their slaves, to whom they denied the honours of burying: and Mr. Monro, in the Philosophical Transactions, gives it as his opinion, that the catacombs were the burial-places of the first Romans, before the practice of burning the dead was introduced.

CATADROME, an engine like a crane, used by builders in raising weights.

CATALEPSY, *Catalepsis*, in physic, a kind of apoplexy; or a disease wherein the limbs are easily flexible, and continue in whatever position they are placed. The natural causes which generally bring on the paroxysms of a catalepsy, are a peccancy of the thick and viscid humours, and intense cold; and the accidental are violent commotions of the mind, grief, terror, joy, fear, and sadness. As to the prognostics of a catalepsy, if it is produced by the passions of the mind, or profound meditations, it is seldom attended with dangerous consequences: but, on the contrary, when it proceeds from a thick, viscid, and impure blood, or from a suppression of accustomed evacuations of blood, it is highly dangerous; for it either terminates in melancholy, or is changed into an epilepsy; or, lastly, terminates in a violent apoplexy, and kills the patient. Nor is the congelation brought on by extreme cold of less danger; since, if reasonable relief is not afforded, sudden death ensues.

CATALLIS CAPTIS NOMINE DISTRICTIONIS, in law, a writ which lies where a house is within a borough, for rent issuing out of the same: and this writ warrants the taking of doors or windows by way of distress.

CATALOGUE, a list or enumeration of the names of several books, men, or other things, according to a certain order.

CATALOGUE of Stars, an enumeration both of the constellations and the unformed stars, with the number of stars in both, and the place of each star. There have been many different catalogues made of the stars in different ages and countries, as by Hypparchus of Rhodes, about 120 years before Christ; by Ptolemy in Egypt, in the reign of Antoninus Pius, by Ulug Beigh grandson to Tamerlane, in 1437; by Tycho Brahe, the Dane, William, landgrave of Hesse, Bayer, and Kepler, in Germany, about the end of the 16th century; by Hevelius in the same country for 1660. But the largest and most complete is the British catalogue, owing to the labours of Mr. Flamsteed; it contains no less than 3000 stars, many of which are so small, that they cannot be seen without the help

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of telescopes; their places are rectified to the year 1689. We have it in the third volume of his *Historia Cælestis*, wherein, besides that of Ptolemy, we have also the abovementioned catalogues of Ulug Beigh, Tycho, the prince of Hesse, and Hevelius, together with an account of each of them in the *Prolegomena*.

CATAMENIA, in medicine. See *MENSES*.

CATAPHONICS, the science which considers the properties of reflected sounds. See *ECHO*.

CATAPHRACTI, horsemen armed with the cataphracts, a kind of coat of mail, which covered the soldier from head to foot.

CATAPLASM, in pharmacy, an external soft kind of medicine of the consistence of thick panada, and prepared of ingredients of different virtues.

CATAPULTA, in antiquity, a military engine contrived for throwing of arrows, darts, and stones upon the enemy.

CATARACT, in hydrography, a precipice in the channel of a river, caused by rocks, from whence the water falls with a greater noise and impetuosity: such are the cataracts of the Nile, the Danube, Rhine, and the famous one of Niagara, in America.

CATARACT, a disorder of the humours in the eye by which the pupilla, that ought to appear transparent and black, looks opaque, grey, blue, brown, &c. by which vision is variously impeded, or totally destroyed.

There is scarce any disorder, the event of which is more uncertain than that of a cataract: medicines will generally have little or no effect when the disorder is confirmed, or inveterate, almost the sole relief is therefore had from the surgeon's hand and instruments. See *COUCHING of Cataracts*.

There are however, some cases in this disorder which ought to be recommended to the care of the physician, who by directing a proper regimen and course of physick, adapted to the patient's habit, age, and other circumstances, may by the assistance of nature, remove cataracts beyond expectation.

CATARRH, in medicine, a distillation or defluxion from the head upon the mouth and aspera arteria, and through them upon the lungs. The cause of this disorder proceeds from the lymph, or mass of blood, most frequently in the winter time, as it commonly arises from a cold.

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If it is attended with a fever, as it generally is, in some degree, it is called a catarrhus fever. The catarrhus suffocatus is a violent and suffocating cough; excited either by an excessive catarrh, or cold; by the rupture of a vomica in the lungs; by a polypus driven from the heart into the pulmonary artery or sometimes by a spasmodic constitution of the nerves; as it happens in some hysteric cases. Catarrhus disorders, as well as all other feverish indispositions, are to be treated in a mild and gentle manner; and the patient is to be kept moderately warm, either in bed, or by means of a fire: he is to abstain from medicines which are too hot, drastic, and productive of commotions; as also from a hot regimen. The diet is to be spare, and the drink tepid and wholesome: the most proper is excoriated barley, with thavings of hartshorn, raisins, and liquorish-root. When the effervescence is violent, a few grains of nitre may be advantageously mixed with the bezoardic powders; and emulsions must be plentifully drank: when during this disorder the feces are indurated, and the patient costive, besides water-gruel, decoctions of manna, &c. are to be drank; and nothing is more proper than emollient clysters.

CATASTASIS, in poetry, the third part of the ancient drama, being that wherein the intrigue, or action, set forth the epitasis, is supported and carried on, and heightened, till it be ripe for the unravelling in the catastrophe.

CATASTROPHE, in dramatic poetry, the fourth and last part in the ancient drama, or that immediately succeeding the catastasis: or according to others, the third only; the whole drama being divided into protasis, epitasis, and catastrophe; or in the terms of Aristotle, prologue, epilogue, and exode.

The catastrophe clears up every thing, and is nothing else but the discovery or winding up of the plot. The great art therein is, that the clearing up of all difficulties may appear wonderful, and yet easy, simple, and natural.

Mr. Dryden thinks a catastrophe resulting from a mere change in sentiments and resolutions of a person, without any other machinery, may be so managed as to be exceeding beautiful. It is a dispute among the critics, whether the catastrophe should always fall out favourably on the side of virtue, or not. The reasons on the negative side seem the strongest, and Aristotle prefers

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prefers a shocking catastrophe to a happy one.

CATCH, or **CATCHES**, in mechanics, those parts which lay hold of others by hooking them.

CATECHISM, in the Liturgy of the church of England, an institution to be learned of every person before he be brought to be confirmed by the bishop. The time appointed for catechising, are Sundays and holidays. Every parson, vicar, or curate, are enjoined, upon every Sunday and holiday, to teach and instruct the youth, and ignorant persons of his parish, in the catechism set forth in the Book of Common-Prayer; and that under the penalty of a sharp reproof for the first omission, suspension for the second, and excommunication for the third.

CATECHIST, an officer in the primitive Christian church, whose business it was to instruct the catechumens in the first principles of religion: this office might be performed by an ecclesiastic of any order, and it was sometimes done by the bishop himself.

CATECHUMEN, a candidate for baptism, or one who prepares himself for receiving it.

The catechumens, in church history, were the lowest order of Christians in the primitive church. They had some title to the common name of a Christian, being a degree above pagans and heretics: though not consummated by baptism. They were admitted to the state of catechumens by the imposition of hands and the sign of the cross. The children of believing parents were admitted catechumens as soon as they were capable of instruction: but at what age those of heathen parents might be admitted is not so clear.

CATEGORICAL, whatever partakes of the nature of a category. Thus, categorical answers are pertinent and precise replies to the facts or objections proposed. See **CATEGORY**.

CATEGORY, in logic, a series or order of all the predicates or attributes contained under any genus. The school philosophers distribute all the objects of our thoughts and ideas into certain genera or classes, not so much, say they, to learn what they do not know, as to communicate a distinct notion of what they do know, and these classes the Greeks called categories, and the Latins predicaments.

As the series of categories is entirely arbitrary, some philosophers think all na-

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ture may be considered under these seven things; spirit, matter, quantity, substance, figure, motion, and rest: and others make but two categories, substance and accident.

CATENARIA, the name of a curve line, formed by a chain or rope, or hanging freely from two points of suspension, whether the points be horizontal or not.

CATERPILLAR, *Eruca*, in zoology, the name of the butterfly-class of insects, in their reptile or worm-state. All winged insects pass through a reptile state, before they arrive at perfection: this great change from a worm to a fly, or butterfly, was formerly esteemed a real metamorphosis of one animal to another; but later discoveries have put it beyond all doubt, that the embryo butterfly, with all the lineaments of its parent, is contained within the external cases, or coverings, of the caterpillar. When the included animal has acquired a sufficient degree of strength, these coverings are thrown off, and it appears in its genuine or most perfect form of a fly, or butter-fly. See **FLY** and **BUTTER-FLY**.

It is necessary, however, before the animal can get rid of these coverings, that it pass through a state of rest, called by naturalists the nymph or chrysalis-state. See **NYMPH**.

CAT-HARPINGS, in naval affairs, ropes which draw in the shrouds parallel to the yards, that the yards may be more easily braced sharp for a side wind.

CATHARTICS, in medicine, remedies which promote evacuation by stool. They are what are commonly called purgatives. Cathartics may be divided into two classes; 1. The eccoprotic or milder. 2. The drastic, or rougher. See **ECOPROTIC** and **DRASTIC**.

They are likewise divided according as they are supposed to purge bile, pituita, melancholy, and serosities, into chologogues, phlegmagogues, melanagogues, and hydragogues. See **CHOLOGOGUES**.

CAT-HEAD, in naval architecture, a large square piece of timber; one end of it is fastened upon the fore-castle, the other end projects without the bow, so far as to keep the anchor clear of the ship when it is drawing up by a tackle.

CATHEDRAL, a church wherein is a bishop's see or seat.

* **CATHERINE**, queen of Henry V. died the beginning of 1437.

* **CATHERINE**, Henry the eighth's first

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first wife, died at Kimbolton, in January, 1536, aged 50.

* **CATHERINE HOWARD**, Henry the eighth's fourth wife, was beheaded on Tower-hill, with Lady Rochford, February 12, 1542.

* **CATHERINE PAR**, Henry the eighth's fifth wife, died in 1548.

* **CATHERINE**, wife of Charles the second, died December 21, 1705.

* **CATHERINE**, (St.) the order of, instituted in Russia, in 1768.

CATHETER, in surgery, a fistulous instrument usually made of silver, to be introduced into the bladder, to search for the stone, or discharge the urine when suppressed.

This instrument cannot be easily passed in either sex, but by one that is previously acquainted with the anatomical structure of the parts.

CATHETUS, in geometry, a line or radius falling perpendicularly on another line or surface: thus the catheti of a right-angled triangle are the two sides that include the right angle.

CATHETUS of Incidence, in catoptrics, a right line drawn from a point of the object, perpendicular to the reflecting line.

CATHETUS of Reflection, or of the Eye, a right line drawn from the eye, perpendicular to the reflecting line.

CATHETUS of Obliquation, a right line drawn perpendicular to the speculum, in the point of incidence or reflection.

CATHETUS, in architecture, a perpendicular line supposed to pass through the middle of a cylindrical body, as a baluster column, &c.

In the Ionic capital, the cathetus is a perpendicular line passing through the middle of the eye of the volute.

CATHOLIC, in a general sense, any thing that is universal or general.

CATHOLIC CHURCH. The rise of heresies induced the primitive Christian church to assume to itself the appellation of Catholic, being a characteristic to distinguish it from all sects. The Romish church distinguishes itself now by the name of Catholic, in opposition to all those who have separated from her communion, and whom she considers as only heretics and schismatics, and herself only as the true and Christian church. In the strict sense of the word, there is no Catholic church in being; that is, no universal Christian community.

CATHOLIC KING, a title hereditary to the kings of Spain ever since Alphonfus, who having gained several victories over

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the Saracens, and re-established the Christian faith in Spain, was honoured with the title of Catholic.

CATHOLICON, in pharmacy, a soft purgative electuary, so called, as being supposed an universal purger of all humours.

* **CATILINE (LUCIUS)** a famous Roman, of a noble family, who having dissipated his fortune in debauchery, formed the design of oppressing his country, destroying the senate, seizing the public treasure, setting Rome on fire, and usurping a sovereign power; to effect which, he drew into his plot some young men of quality; whom he prevailed upon to drink human blood as a pledge of their union. His conspiracy was however discovered by the vigilance of Cicero, who was then consul; and the particulars made known to Fulvia, who was beloved by one of the conspirators; when Cicero, having accused and convicted Catiline in full senate, he retired, threatening that he would extinguish the embarrassment into which he was thrown, under the ruins of Rome: at length putting himself at the head of an army, with several of the conspirators, he fought with incredible valour against Petreius, lieutenant to Anthony, who was colleague with Cicero in the consulship; but was defeated and killed in battle, sixty-two years before the Christian æra.

CATLIN, among surgeons, a knife for cutting off corrupted parts of the body.

* **CATO** of Utica, so called from the place of his death, was great grandson to Cato the censor. He was educated by his uncle Livius Drusus, and discovered in his infancy such courage, that at fourteen years of age he demanded a sword to kill the tyrant Sylla. Cato adhered to the sect of the Stoics, from whom he obtained that grandeur of soul which he shewed on many occasions. He performed his first campaign in the war of the rebellious slaves, commanded by Spartacus, seventy-three years before the birth of Christ, and a short time after had the command of a thousand foot in Macedonia. At his return he was made quaestor, and demanded the dignity of tribune to prevent a wicked man from having it. He joined Cicero against Catiline, and opposed Cæsar in the senate. His enemies caused him to be sent to seize the island of Cyprus, which had been unjustly forfeited by Ptolemy, imagining he by this step would lose his reputation; but he behaved there with such prudence that they had nothing to

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to reproach him with. Cato made use of all his endeavours to reconcile Caesar and Pompey, during the civil wars; but not being able to succeed, joined with Pompey's party, after the battle of Pharsalia, and the death of Pompey, he retired to Utica, where being informed that he was pursued by Caesar, he advised his friends to fly, and his son to make trial of Caesar's clemency. At length placing himself on his bed, he read twice over Plato's treatise on the immortality of the Soul, and then stabbed himself with a poinard, of which he died, forty-five years before the Christian æra, aged forty-eight.

CATOCHE, or **CATOCHUS**, in medicine, a disease by which the patient is rendered in an instant, as immoveable as a statue, without sense or motion, and continues in the same posture he was in at the moment he was seized. The proximate cause of this disease is the immobility of the common sensory, from the time of the first attack, and therefore is an absolute rest of the blood in the brain, of the glands of the brain, and of all its emissories. The disease is generally preceded by obstinate intermitting fevers; by a dry, lean, melancholy temperament of body; by a retention of the menses and hæmorrhoids; by sudden frights; by a profound, constant, and fixed meditation on one subject. It is often cured by exciting a copious hæmorrhage from the nose; but the particular method of cure is various, according to the different causes: the patient should be excited with things that greatly strike the senses, such as light, noise, stimulating things, volatile salts, pain, friction, continual agitations, by promoting the menstrual flux, by sternutatories, and emetics, by blisters, by issues, by setons, by a moistening diet.

CATOPTRICS, that part of optics treating of reflex vision, and explains the laws and properties of reflection, chiefly founded upon this truth, that the angle of reflection is always equal to the angle of incidence; and from thence deducing the magnitudes, and shapes, and situations of the appearances of objects seen by the reflection of polished surfaces, and particularly plane, spherical, conical, and cylindrical ones. See **OPTICS**.

CATOPTRIC CISTULA, a machine or apparatus, whereby small bodies are represented extremely large, and near ones extremely wide and diffused through a vast space, and other agreeable phenomena, by means of mirrors, disposed by the

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laws of catoptrics, in the concavity of a kind of chest.

Of these there are various kinds accommodated to the various intentions of the artificer; some multiply objects, some deform them, some magnify, &c.

CATOPTRIC DIAL, a dial that exhibits objects by reflected rays. See the article **REFLECTING DIAL**.

CATOPTRIC TELESCOPE, a telescope that exhibits objects by reflection. See **REFLECTING TELESCOPE**.

CATTLE *Pecora*, an order of quadrupeds. See **PECORA**.

Black CATTLE, the same with the ox-kind. See **Bos**.

CAVA, or **VENA CAVA**, in anatomy, a vein arising with a large sinus from the right auricle of the heart. It there sends out a vein to the heart itself, called the coronary vein, and is divided into two trunks, a superior and an inferior; from the superior trunk of the vena cava there arise the following veins; the azygos, the bronchial; the mediastinal, the superior diaphragmatic, and the subclavians; the inferior trunk of the vena cava is remarkable for the valves, and from this arise the diaphragmatic, or inferior phrenic veins, the renal veins, the spermatic, the sacra, and the iliacs. See **VEIN**.

CAVALIER, in fortification, an elevation of earth, of different shapes, usually situated in the gorge of a bastion bordered with a parapet, and cut into more or less embrasures, according to the capacity of the cavalier.

CAVALIER, in the manege, one that understands horses, and is practised in the art of riding them.

CAVALRY, a body of soldiers that charge on horseback, and may properly be called the right arm of the army: they are of great service in disturbing the enemy, by their frequent excursions, in intercepting convoys, and destroying the country. The cavalry is divided into squadrons, and encamp on the wings of the army.

CAVAZION, or **CAVASION**, in architecture, the hollow trench made for laying the foundation of a building, which according to Palladio, ought to be one sixth part of the height of the whole building.

CAUCALIS, in botany, a genus of plants.

CAUDA DRACONIS, the dragon's-tail, in astronomy, the name of the moon's descending node. See **NODE**.

CAUDA

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CAUDA LEONIS, in astronomy, a star of the first magnitude in the tail of the constellation Leo. See **LEO**.

CAVEAR, or **CAVEER**, or **CAVIARY**, the spawn or hard roes of sturgeon, made into small cakes, salted and dried in the sun. This sort of food is in great repute throughout Muscovy, because of their three Lents, which they keep with a superstitious exactness. There is a pretty large quantity of this commodity consumed in Italy; and they are very well acquainted with it in England and France, where it is reckoned no despicable dish.

CAVEAT, in law, a kind of process in the spiritual courts, to stop the proving of a will, the granting letters of administration, to the prejudice of another, &c. See **PROBATE**.

It is also used to stop the institution of a clerk to a benefice.

CAVERNOSE, among anatomists, an appellation given to several parts of the body, on account of their spongy structure: thus the cavernosa corpora of the penis are two spongy bodies, made up of a number of small caverns or cells.

CAVETTO, in architecture, a hollow member, or round concave moulding, containing a quadrant of a circle. It is used as an ornament in cornices.

CAVEZON, in the manege, a sort of noseband, either of iron, leather, or wood, sometimes flat, and at other times hollow or twisted, clapped upon the nose of a horse, to wring it, and so forward the supplying and breaking of the horse.

CAVIN, in the military art, a natural hollow, fit to lodge a large body of troops: if there happen to be any near a place besieged, it is of great use to the besiegers.

CAUK, or **CAWK**, a coarse sparry stone, of a white colour, found in the lead-mines.

CAUL, in anatomy, a membranaceous part of the abdomen, covering the greatest part of the guts, usually furnished with a large quantity of fat, placed under the peritonæum, and immediately over the intestines, called by some authors rete, or reticulum, from the number of holes appearing in it, when raised, and giving it the resemblance of a net: but it is most frequently called omentum. See **OMENTUM**.

CAUL, a little membrane, found on some children, encompassing the head when born.

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CAULICOLES, or **CAULICOLI**, are eight lesser branches or stalks, in the Corinthian capital, springing out from four greater or principal cauls, or stalks.

CAULIFEROUS, an appellation given to such plants as have a perfect caulis, or stem. See **CAULIS**.

CAULIFLOWERS, in gardening, are the produce of a kind of cabbage; they are in season in the months of May, June, and July, but the skill of the gardener can continue them much longer. The manner of propagating them is this:

Having procured some good seed, you must sow it before the middle of August, upon an old cucumber or melon-bed, sifting earth over the seeds to a quarter of an inch in thickness; if the weather prove very hot and dry, the beds must be shaded with mats, and be lightly watered at times. In about a week's time the seeds will appear above ground, and they must be uncovered by degrees, but not exposed to too much sun at first. In about a month more they should be pricked out on another old bed, at three inches distance, and shaded and watered, when first transplanted; but after this they must not be much watered, nor be suffered to have too much rain, which will make them back-shanked, or rotten in the stalks. In this bed they are to remain till the middle of October, when they are to be planted out for the winter season: they are then to be planted out in rich beds, and those which are to be early ripe, are to be shaded with bell-glasses, two under each glass, and in February to be planted out again: the rest are to be at first set at a greater distance, and to stand.

When the cauliflowers begin to fruit, they must be carefully watched, and some of the inner leaves must be bent down over the flower, to shade it from the sun, which would otherwise turn it yellow. The very finest of the cauliflowers, which are not loose and frothy about the edges, and very firm should be saved for seed; and the flower stems, as they shoot out, supported with sticks till the seeds are ripened, which must then be carefully gathered and dried for use. *Miller's Gard. Diet.*

CAULIS, among botanists, the stalk of herbaceous plants: this, in trees, is called *caudex*, or trunk; and in grasses, *culmus*, or stem.

CAULKING, amongst shipwrights, the act of driving a quantity of oakum, &c.

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old ropes untwisted and softened, into the seams of the planks, or between them where they are joined, in order to keep out the water: after the oakum is driven very hard into these seams, it is covered with hot melted pitch, to prevent the water from rotting it.

CAUSE, *Causa*, that from whence any thing proceeds, or by virtue of which any thing is done: it stands opposed to effect. We get the ideas of cause and effect, says Mr. Locke, from our observation of the vicissitude of things; while we perceive some qualities or substances begin to exist, and that they receive their existence from their due application and operations of other beings. That which produces is the cause, and that which is produced the effect: thus fluidity in wax is the effect of a certain degree of heat, which we observe to be constantly produced by the application of such heat.

First CAUSE, that which acts of itself, and of its own proper power or virtue: God is the only first cause in this sense.

Second CAUSES, are those which derive the power and faculty of action from a first cause: these are improperly called causes; as they do not, strictly speaking, act at all, but are acted on: of this kind are all those that we term natural causes.

Causes are distinguished by the schools, into efficient, material, final, and formal.

Efficient CAUSES, the agents employed in the production of any thing.

Material CAUSES, the subjects whereon the agents work, or the materials whereof the thing is produced.

Final CAUSES, the motives inducing an agent to act; or the design and purpose for which the thing was done.

Formal CAUSE, the change resulting from the action; or that which determines a thing to be this, and distinguishes it from every thing else: thus, the soul is held the formal cause of man.

Causes are again distinguished into physical and moral.

Physical CAUSE, that which produces a sensible corporeal effect; as the sun is the physical cause of light: others define it, that which produces its effect by a physical virtue.

Moral CAUSE, that which produces a real effect, but in things immaterial; as repentance is the cause of forgiveness. A moral cause is also defined, that which determines us, though not necessarily, to do, or not to do any thing; as advice,

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intrests; commands, menaces, &c. It is to be observed, that in this sense, a moral cause is only applicable to a free intelligent agent: it is also observable, that the latter notion of a physical, as well as a moral cause, is the most just, clear, and distinct.

Causes are again distinguished into universal, or particular; principal, or instrumental; total, or partial; univocal, equivocal, &c.

CAUSE, among civilians. See ACTION.

CAUSEWAY, or **CAUSEY**, a massive body of stones, flakes, and fuscines; or an elevation of fat viscous earth, well beaten; serving either as a road in wet marshy places, or as a mole to retain the waters of a pond, or prevent a river from overflowing the lower grounds.

CAUSTICS, in physic, medicines of so hot and fiery a nature, that being applied, consume, and, as it were, burn the texture of the parts like hot iron. Caustics differ from cauteries, in that they perform their effects slower, and with less force, and pain; they are used to eat off proud fungous flesh; they also penetrate within hard callous bodies, and liquify the humours; and are particularly applied in abscesses and imposthumations, to eat through to the suppurated matter, and give it vent; sometimes also to make issues, in parts where cutting is difficult or inconvenient.

CAUSUS, or **BURNING-FEVER**, a species of continual fever, accompanied with a remarkable inflammation of the blood. The principal symptoms are a heat almost burning to the touch, the breath extremely hot, a dryness of the whole skin, the tongue parched and rough, and an unquenchable thirst. See FEVER.

CAUTERIZATION, the application of cauteries to any part of the body. See CAUTERY.

CAUTERY, in surgery, a medicine for burning, eating, or corroding any solid part of the body.

Cauteries are distinguished into two classes, actual and potential: by actual cauteries are meant red-hot instruments, usually of iron, which are applied to many parts and disorders; and by potential cauteries are understood certain kinds of corroding medicines.

Cauteries have manifold uses; for they not only destroy the dead parts of carious bones, remove cancers, schirrh, excrescences, carbuncles, and mortified parts;

but

but they are also used to make issues and setons, to stop hæmorrhages in wounds and amputations; and lastly, to remove an aneurism, epilepsy, sciatica, with pains in the teeth and other parts. Several physicians have observed, that cauteries have succeeded in apoplexies when all other remedies have failed. But for the part to which the caustery is to be applied, there are various opinions; some prefer the occiput; some the nape of the neck, between the first and second vertebra; some the meeting of the coronal and sagittal sutures; and others pitch upon other parts. Mistichellius, an Italian writer asserts, that no part can be so proper for cauterization in apoplexies, as the soles of the feet.

CAUTING IRON, in farriery, an iron with which farriers cauterize or scar those parts of an horse that require butting.

CAUTION, *Cautio*, in the civil and Scotch law, denotes much the same with what, in the law of England, is called bail. See **BAIL**.

CAXOU, among miners, denotes a chest of any ore ready for refining.

* **CAXTON**, (Wm.) the first printer in England, who introduced that art into London in 1474, died in 1494, aged 82.

CAZEMATE, or **CASEMATE**, in fortification, a certain retired platform in the flank of a bastion, for the defence of the moat and face of the opposite bastion.

CAZEMATE is also used for a well with several subterraneous branches dug in the passage of the bastion, till the miner is heard at work, and air given to the mine.

CECIL (**WILLIAM**) baron Burleigh, lord high treasurer of England, in the reign of Elizabeth, was the son of Richard Cecil, esq; master of the robes to king Henry VIII. and was born at Bourn, in Lincolnshire. He was educated at Cambridge, from whence he was removed to Gray's Inn, in order to study the law; but while he was thus employed, an accident introduced him to the knowledge and favour of his sovereign. O'Neil, a famous Irish chief, coming to court, brought with him two of his chaplains, who were very great bigots, to the faith, and power of the Romish pontiff, and Mr. Cecil coming to the palace to see his father had a warm dispute with them in Latin, which was managed with such skill and vivacity on the part of Cecil, that the two priests finding their deficiency in point of argument, fell into a passion.

This being reported to the king, he had the curiosity to see the young man, and was so much taken with his abilities, that he directed his father to find out a place for him; but there being none vacant, the old gentleman asked the reversion of the *custos brevium*, worth two hundred and forty pounds a year, which was readily granted, and a few years after, at the beginning of the reign of Edward VI. it came into his possession; this induced Mr. Cecil to push his fortune in that road which he had so happily entered. In

1547 he was made master of the requests, the next year he was advanced to the high post office secretary of state, and in 1551, was knighted and sworn one of the privy council. However, in the reign of Queen Mary, he was obliged to resign his employments, but was twice chosen knight of the shire for the county of Lincoln. In that reign he carried on a private correspondence with the princess Elizabeth, and on her coming to the throne in 1558, was sworn privy counsellor, and secretary of state. In 1561 he was made master of the wards; in 1571 created baron of Burleigh, in 1572, knight of the Garter, and the year after, lord high treasurer. He was remarkable for the prudence and steadiness of his conduct; and though he transacted a variety of business of different kinds, yet every thing seems to have been managed with as much attention as if he had nothing else in view, agreeable to his own favourite and excellent maxim, "That the shortest way to do many things, is to do but one thing at a time." This great minister died August 4, 1598. This great statesman wrote several very excellent treatises.

CEDAR, in botany, a large tree which pushes out branches at the distance of ten or twelve feet from the ground. They are large, and at a distance from each other. Its leaves are pretty much like those of rosemary. It is an evergreen, and lives very long, but dies as soon as its top is cut off. The leaves stand upright, and the fruit hangs down; that fruit is a smaller one, like that of the pine-tree, except that its rind is thinner, smoother, and more open. The seed is like that of the cypress-tree. There are still some cedars on Mount Libanus, but in small number, above and to the east of Biblos and Tripoli. There are none to be seen any where else on these mountains. But it is very probable that there were a great many more formerly,

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Since their timber was used in so many considerable works. There are some cedars also growing in several parts of Africa, in the isle of Cyprus, and in that of Crete or Candia. The wood is accounted proof against all putrefaction of animal bodies. This wood is also said to yield an oil, which is famous for preserving books and writings; and the wood is thought, by lord Bacon, to continue above a thousand years found.

Bastard CEDAR, in botany. See THEOBROMA.

White CEDAR, a name given to a species of cupressus. See CUPRESSUS.

CEDRIA, among physicians, the gum or resin which issues from the cedar. Its good qualities consist in its being fat, thick, transparent, and that, when poured out, it falls by equal drops.

CEILING, in architecture, the upper part or roof of a room, being a lay or covering of plaster over laths, nailed on the bottom of the joists which bear the floor of the upper room, or on joists put up for that purpose, where there is no upper room; hence called cieling joists.

CELANDINE, *Chelidonium*, in botany. See CHELIDONIUM.

CELERITY, in mechanics, the swiftness of any body in motion. See VELOCITY and MOTION.

*CELEUS, in fabulous history, king of Eleusis, who giving an hospitable reception to Ceres, she in return taught him the art of sowing corn; and to render his son Triptolemus immortal, covered him every night with fire, which Celeus discovering, was so affrighted that he cried out and revealed himself, on which the goddess destroyed him.

CELESTINS, in church-history, a religious order of Christians, reformed from the Bernardins by pope Celestin V. They rise two hours after midnight to say matins: they eat no flesh at any time, except when they are sick: they fast every Wednesday and Friday, to the feast of the exaltation of the Holy-cross; and from that feast to Easter, every day.

CELIAC, or COELIAC PASSION, a sort of diarrhæa, or flux of the belly, wherein the aliment comes away either crude or chylified, instead of excrements.

CELIBACY, the state of unmarried persons, to which, according to the doctrine or discipline of the church of Rome, the clergy are obliged. In the church of England, the marriage of the clergy was generally practised to the end of the tenth century,

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and in a great measure to the beginning of the twelfth. That celibacy has no pretence of divine or apostolical institution, seems no difficult point to prove: whence it is, at first, hard to conceive from what motive the court of Rome persisted so very obstinately to impose this institution of the clergy. But we are to observe, that this was a leading step to the execution of the project formed of making the clergy independent of princes, and rendering them a separate body, to be governed by their own laws. In effect, while priests had children, it was very difficult to prevent their dependence upon princes, whose favours have such an influence on private men; but having no family, they were more at liberty to adhere to the pope.

CELL, *Cella*, a little apartment or chamber, such as those wherein the ancient monks, solitaries, and hermits, lived in retirement. The hall wherein the Roman conclave is held, is divided by partitions into divers cells for the several cardinals to lodge in.

CELLS, little divisions in honeycombs, which are always regular hexagons. See COMBS.

CELLS, in botany, the hollow places between the partitions in the pods, husks, and other seed-vessels of plants; according as there is one, two, three, &c. of these cells, the vessel is said to be unilocular, bilocular, trilocular, &c.

CELLS, in anatomy, little bags or bladders where fluids or other matters are lodged, called loculi, cellulæ, &c.

CELLAR, the lowest room in a house, the ceiling of which is level with the surface of the ground on which the house stands, or at most but very little higher.

CEMENT, or CÆMENT, in a general sense, any glutinous substance capable of uniting and keeping things together in close cohesion.

There are many different kinds of cement; those used for common purposes pass under the denomination of glue, size, paste, and lutes. See GLUE, SIZE, PASTE, and LUTES.

The cement which has been most approved for uniting glass, china, or earthen ware, as also the parts of metalline bodies, where soldering is not expedient, is thus prepared:

“Take two ounces of good glue, and steep it for a night in distilled vinegar: boil them together the next day; and having beaten a clove of garlic with half

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an ounce of ox-gall, into a soft pulp, strain the juice through a linen cloth, using pressure, and add to it the glue and vinegar, Take then of sandaric powdered, and turpentine each one dram, and of sarcocol, and mastic, powdered, each half a dram; and put them into a bottle with an ounce of highly rectified spirit of wine. Stop the bottle; and let the mixture stand for three hours in a gentle heat; frequently shaking it. Mix this tincture also with the glue while hot; and stir them well together with a stick or tobacco-pipe, till part of the moisture be evaporated; and then take the composition from the fire, and it will be fit for use. When this cement is to be applied, it must be dipped in vinegar; and then melted in a proper vessel with a gentle heat; and when stones are to be cemented, it is proper to mix with it a little powdered tripoli or chalk; or when glass is to be conjoined, powdered glass should be substituted."

For the uniting the parts of broken china or earthen-ware vessels, as also glass, where the rendering the joint visible is not of consequence, the following composition which is much more easily prepared, may be substituted for the foregoing:

"Take an ounce of Suffolk cheese, or any other kind devoid of fat, grate it as small as possible, and put it, with an equal weight of quick-lime, into three ounces of skimmed milk: mix them thoroughly together, and use the composition immediately.

Where the broken vessels are for service only, and the appearance is not to be regarded, the joints may be made equally strong with any other part of the glass, by putting a slip of thin paper, or linen, smeared with this cement over them, after they are well joined together by it. This method will make a great saving in the case of glasses employed for chemical, or other similar operations.

Drying oil with white lead is also frequently used for cementing china and earthen-ware; but where it is not necessary the vessels should endure heat or moisture, isinglass glue, with a little tripoli or chalk, is better.

The preparation of common cement for joining alabaster, marble, porphyry, or other stones, is this:

"Take of bees-wax two pounds, and of resin one pound; mix them, and add one pound and a half of the same kind of matter powdered, as the body to be cemented is composed of; strowing it into the melted

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mixture, and stirring them well together; and afterwards kneading the mass in water, that the powder may be thoroughly incorporated with the wax and resin. The proportion of the powdered matter may be varied, where required, in order to bring the cement nearer to the colour of the body on which it is employed.

This, which forms an extremely strong cement, must be heated when applied; as must also the parts of the subject to be cemented together; and care must be taken likewise that they be thoroughly dry. Where a great quantity of cement is wanted for coarser uses, the coal-ash mortar, or Welsh tarras, as it is called, is the cheapest and best, and will hold extremely well, not only where it is constantly kept wet, or dry; but even where it is sometimes dry and at others wet; but where it is liable to be exposed to wet and frost, it should, at its being laid on, be suffered to dry thoroughly before any moisture have access to it; and, in that case, it will likewise be a great improvement to temper it with the blood of any beast. This mortar, or Welsh tarras, must be formed of one part lime, and two parts of well sifted coal-ashes; and they must be thoroughly mixed by being beaten together: for on the perfect commixture of the ingredients, the goodness of the composition depends.

Where the cement is to remain continually under water, the true tarras is commonly used, and will very well answer the purpose. It may be formed of two parts of lime, and one part of plaster of Paris; which should be thoroughly well beaten together, and then used immediately.

For the fixing shells, and other such nice purposes, putty is most generally used; but it may be formed of quick-lime, and drying oil, mixed with an equal quantity of linseed oil; or, where the drying quicker is not necessary, it may be made with lime and crude linseed oil, without the drying oil.

Resin, pitch, and brick-dust, in equal parts, melted together and used hot, are much the cheapest cement for shell-work; and will perform that office very well, provided the bodies they are to conjoin be perfectly dry when they are used.

CEMENTATION, or CEMENTATION, the corroding of metals in a dry form, by means of the fumes of acid salts.

It is performed in the following manner. After the copper has been separated as much as possible by copelling, a stratum of salts of about half an inch in thickness is spread

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Spread in the bottom of the cement-pot; over this are laid thin plates of gold, then another stratum of salts, and so on alternately till the pot be filled within half an inch of the brim. This being done, the pot is covered up, and encompassed with fire, which should be made gradually fiercer and fiercer; and in sixteen or twenty hours after they have been red-hot, entirely removed, that every thing may cool by degrees. Then the pots are to be opened, the salts taken out, and if it is grown too hard, to be softened by a sprinkling of hot water. The plates of gold must be washed in hot water, and the water renewed, till it be free from all saline taste; for the salts, together with the metal they have corroded, will be contained in the plates of gold. The gold must be tried with the touchstone, or some more certain method, to know if it has the degree of fineness required; and if it is not pure enough, it must be cemented a second time, and, if necessary, with stronger salts.

CEMETERY, *Cæmeterium*, a place consecrated, or set apart, for burying the dead. *Se* **COEMETERY**.

CENOTAPH, in antiquity a monument erected in honour of the dead, without containing any of their remains.

CENSER, a sacred instrument made use of in the religious rites of the ancients. It was a vase, containing incense to be used in sacrificing to the gods. Censers were likewise in use among the Jews, as we find in 1 Kings vii. 50. The censer is also used in Romish churches.

CENSOR, in Roman antiquity, a magistrate, whose business it was to reform the manners, and to value the estates of the people. There were two censors first created in the 311th year of Rome, upon the senate's observing, that the consuls were generally too much taken up in military actions, to have leisure to attend to private affairs. At first they were chosen out of the senate, but after the Plebeians had got the consulate open to them, they soon arrived at the censorship.

CENSURE, a judgment which condemns some book, person, or action, or more particularly a reprimand from a superior. Ecclesiastical censures are penalties by which, for some misbehaviour, Christians are deprived of the communion of the church, or prohibited to execute the sacerdotal office.

CENSUS, among the Romans, an authentic declaration, made by the several subjects of the empire, of their respective

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names and places of abode, before proper magistrates in the city of Rome, called censors, and in the provinces censitores, by whom the same were registered. This declaration was accompanied with a catalogue, or enumeration, in writing, of all the estates, lands, and inheritances they possessed; their quantity, quality, place, wives, children, tenants, domestics, slaves, &c.

CENT, properly a hundred, being an abridgement of the word *centum*; often used in commerce, to express the profit or loss arising from the sale of any commodity; so that when we say there is 10 per cent. profit, or 10 per cent. loss, upon any merchandize, it is to be understood, that the seller has either gained or lost ten pounds on every hundred pounds of the price, at which he bought that merchandize. Thus we say, money is worth 4 or 5 per cent. upon exchange; that is to say, it brings 4 or 5 pounds profit for every hundred pounds laid or lent out.

Cent is also used with regard to the draughts or remittances of money made from one place to another. Thus we say, it will cost 2½ per cent. to remit money to such a city. When we say that a broker, or agent, takes one eighth per cent. fee, for the contracts that are made by his means and interposition, it is to be understood, that there is to be paid to him the eighth part brokerage of a pound, which is 2s. 6d. for every hundred pound he causes to be negotiated. The one eighth per cent. is commonly paid by both the contracting parties; that is to say, by him who gives, and by him who receives the money.

CENTAUR, or **HIPPOCENTAUR**, in ancient poetry, a fabulous kind of animal, half man, half horse. The Thessalians, who first taught the art of breaking horses, appearing on horse-back to make only one body with the animal on which they rode, gave rise to the fiction of the hippocentaur.

CENTAUR, *Centaurus*, in astronomy, a constellation of the southern hemisphere commonly joined with the wolf, and called *centaurus cum lupo*. The number of stars in this constellation in Ptolemy's catalogue are 19; in Tycho's 4; and in the Britannic catalogue 13.

CENTAURIUM Majus, great centaury, in botany, a large plant, which is perennial, a native of the southern parts of Europe, and raised with us in gardens. It is aperient and corroborant, and supposed to be particularly useful in alvine fluxes;

but



Fig. 2. Center of Gravity.

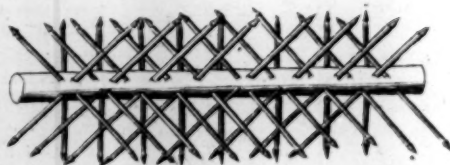
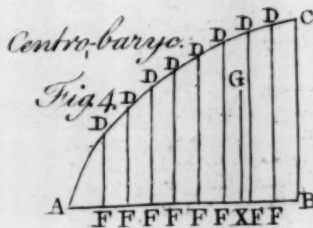
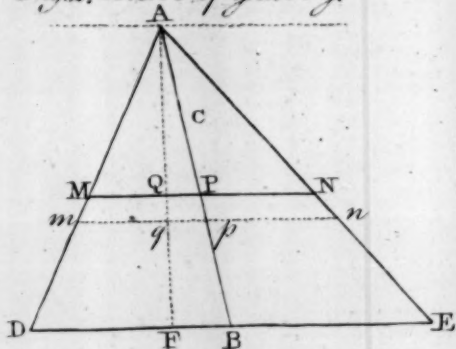
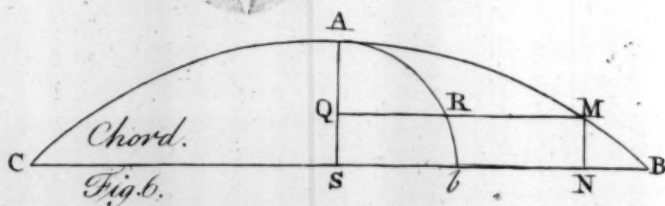
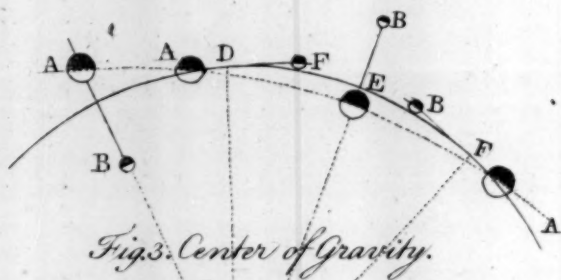


Fig. 5. Chevaux de Friers.



C E N

but among us, it has long stood discarded from practice, and is now dropped by the colleges both of London and Edinburgh.

CENTAURIUM *Minus*, lesser centaury, in botany, a small annual plant, which grows wild in dry pasture grounds, and flowers in July. The leaves and tops of centaury are strong, bitter, of scarcely any smell or particular flavour. The seeds also are very bitter; the petals of the flowers, and the roots, almost insipid. The flowery tops are generally made choice of, and are of considerable estimation in the present practice as corroborant stomachic biters.

CENTER, or CENTRE, in a general sense, signifies a point equally distant from the extremities of a line, figure, or body.

CENTER of Attraction, in the new astronomy, that point towards which the revolving planet or comet is impelled or attracted by the impulse of gravity.

CENTER of a Bastion, a point in the middle of the gorge of a bastion, from whence the capital line commences, which is generally at the inner polygon of a figure.

CENTER of a Battalion, the middle of a battalion, where there is generally left a square place for holding the cloaths and baggage.

CENTER of a Circle, a point within the same, from whence all lines drawn to the circumference are equal.

CENTER of a Conic Section, the point where all the diameters meet.

CENTER of a Dial, that point where a line drawn parallel to the axis of the earth intersects the dial planes.

CENTER of an Ellipse, that point where the transverse and conjugate diameters intersect each other.

CENTER of Gravity, that point about which all the parts of a body, in any situation, balance each other.

This center of gravity in bodies is of the greatest consequence to be well understood, as being the sole principle of all mechanical motions. The particular properties hereof are as follow: 1. If a body be suspended by this point, as the center of motion, it will remain at rest in any position indifferently. 2. If a body be suspended in any other point, it can rest only in two positions, viz. when the said center of gravity is exactly above or below the said point of suspension. 3. When the center of gravity is supported, the whole body is kept from falling. 4. Because this point has a constant endeavour to descend to the

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center of the earth; therefore, 5. When this point is at liberty to descend, the whole body must also descend or fall, either by sliding, rolling or tumbling down. 6. The center of gravity in regular, uniform, and homogenous bodies, as squares, circles, spheres, &c. is the middle point in a line connecting any two opposite points or angles. 7. In a triangle it is in a line drawn from any angle bisecting the opposite side, one third of the length distant from that side or base. 8. In human bodies, the center of gravity is situated in that part which is called the pelvis, or in the middle, between the hips.

Hence the solution of several very curious phenomena will be evident with the least attention, as why some bodies stand more firmly on their bases than others; why some stand firmly in an inclined position; why some bodies fall in one manner, some in another; why some may seem to rise while the center of gravity really descends, as the rolling cone and cylinder. Hence the form of that particular bucket which descends empty with the mouth downwards, but is drawn up full with the mouth upwards. Hence also it appears that a waggon loaded with heavy matter, as iron, stone, &c. will go safely on the side of a hill, or rising ground, where a load of hay or corn would be overturned. Again, we hence see the reason why no man standing still can move or stir, without first moving the center of gravity out of its place: also, why we stand firmly, while the center of gravity falls between or on the base line of the feet; and how necessarily we fall when the center of gravity falls on one side or other of the same; with many other particulars which result from this principle.

Problem. To find the center of gravity of a plane figure. Let AB be the axis, and MN (pl. XII. fig. 1.) an ordinate to it, and let m be another infinitely near M ; suppose C the required place of the center of gravity. Now if the infinitely small parts, as $MmnN$ of the figure be conceived as so many weights appended to the axis AB at the several points P, p , &c. and the point of suspension, be in A , the vertex of the figure, the distance of the center of gravity C from A , the point of suspension, will be equal to the quotient of the division of the sum of the momenta of all the said infinitely small parts or weights $MmnN$, by the sum of all those little parts or weights; that is, by the area of the whole figure.

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Therefore calling $AP, x; MP, y; P, p$, the infinitely small part or weight Mm will be $= 2yx$, and the sum of them equal to the fluent of $2yx$. Again, the momentum of one of those infinitely small parts or weights will be $2yx$, multiplied by $AP (x) = 2yx^2$. The fluent of which, divided by the fluent of $2yx$, will be equal to AC , the distance of the center of gravity from A , the vertex of the figure.

The common center of gravity of the sun and planets may be easily found by comparing their quantity of matter and distances, thus; let ABC (plate XV. fig. 3.) represent the sun's body, and S its center. Now since the bulks and distances, of the four first planets, Mercury, Venus, the earth, and Mars, are very inconsiderable in regard of the sun, they would not, if placed in the right line CG , remove the common center of gravity between the sun and themselves far from the center of the sun, suppose to L . But when we come to Jupiter, his bulk and distance give him a considerable momentum, which will, if placed in the same line CG , remove the center of gravity from L to I , a point without the surface of the sun's body. Lastly, if we consider Saturn placed in the line CG with all the rest, though his quantity of matter falls short of, yet his distance far exceeds that of Jupiter, and therefore his momentum will be considerable enough to bring the common center of gravity from I to K , at such a distance OK from the sun's surface as is equal to $\frac{8}{10}$ of the sun's

semi-diameter SC : or $SC : CK :: 10 : 8$. Now it is this point K , which is the fixed and immoveable center of the system, about which the sun, as well as all the planets, continually move. But the sun being always very near it, and its distance therefrom varying with the different positions of the planets, the motion of the sun about the common center K will be very irregular and unequal, while that of the planets on account of their great distance, may be esteemed nearly uniform and circular.

CENTER of Magnitude, that point which is equally distant from all the external parts of the body.

CENTER of Motion, that point which remains at rest, while all the other parts of the body move about it.

CENTER of Oscillation. See OSCILLATION.

CENTER of Percussion. See PERCUSSION.

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CENTER of a Parallelogram, or Polygon, the point in which its diagonals intersect.

CENTER of a Sphere, a point in the middle, from which all lines drawn to the surface are equal.

CENTESIMATION, a milder kind of military punishment, in cases of desertion, mutiny, and the like, when only every hundredth man is executed.

CENTIPES, in zoology, the same with the scolopendra. See SCOLOPENDRA.

CENTNER, among metallurgists and assayers, a weight divisible first into an hundred, and afterwards into other lesser parts. However, it is to be observed, that the centner of metallurgists, is the same with the common hundred weight; whereas that of assayers is no more than one dram, to which the other parts are proportional, and nevertheless pass by the names 100 lb. 64 lb. &c.

CENTRAL, relating to a center.

CENTRAL RULE, a rule discovered by Mr. Thomas Baker, to find the center of a circle designed to cut the parabola, in as many points as an equation to be constructed hath real roots. Its principal use is in the construction of equations, and he has applied it with good success as far as biquadratics. The central rule is chiefly founded on this property of the parabola, that if a line be inscribed in that curve perpendicular to any diameter, a rectangle formed of the segments of the intersect, is equal to the rectangle of the intercepted diameter and parameter of the axis.

CENTRIFUGAL FORCE, that force by which all bodies that move round any other body in a circle, endeavour to fly off in every point of the curve.

CENTRIFUGAL MACHINE, a curious machine, invented by Mr. Baskine, for raising water by means of a centrifugal force, combined with the pressure of the atmosphere. It consists of a large tube of copper, set in the form of a cross, which is placed perpendicular in the water, and rests at the bottom on a pivot. At the upper part of the tube is a horizontal cog wheel, which touches the cogs of another in a vertical position, so that by the help of a double winch, the whole machine is moved round with very great velocity.

Near the bottom of the perpendicular part of the tube is a valve opening upwards; and near the two extremities, but on the contrary sides of the arms, or cross part of the tube, are two valves opening outwards. These two valves are by the assist-

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assistance of springs kept shut till the machine is put in motion, when the centrifugal velocity of the water forces them open, and discharges itself into a cistern or reservoir placed there for that purpose. On the upper part of the arms are two holes, which are closed by pieces screwing into the metal of the tube. Before the machine can work, these holes must be opened, and water pouted in through them, till the whole tube be full: by this means all the air will be forced out of the machine, and the water supported in the tube by means of the valve at the bottom. The tube being thus filled with water, and the holes closed by their screw-caps, it is turned round by means of the winch, whence the water in the arms of the tube acquires a centrifugal force, opens the valves near the extremities of the arms, and flies out with a velocity nearly equal to that of the extremities of the said arms.

CENTRIPETAL FORCE, that by which a body is every way impelled, or any-how tends towards some point, as a center; among which may be reckoned gravity, whereby bodies tend towards the center of the earth; the magnetical attraction whereby it draws iron; and that force, whatever it be, whereby the planets are continually drawn back from right-lined motions, and made to move in curves. The centripetal and centrifugal force of the same revolving body, in the same point of the curve that it describes, are always equal and contrary.

CENTRO-BARYC, in mechanics, a method invented by P. Guldinus for determining the content of a superficies, or solid, by means of the center of gravity, of which the following is a general investigation.

Theorem I. Let *G* (pl. XII, fig. 4.) be the center of gravity of the space *ABC*, contained by the right-lines *AB*, *BC*, comprehending a right angle, and the curve-line *ADC* of any kind whatsoever: from *G*, draw *GX* parallel to *BC*. Now if we conceive the said space to be divided into an infinite number of equal parts, by the lines *FD*, *FD*, *FD*, &c. drawn parallel to *BC*; then will the sum of the segments *AFD*, *AFD*, &c. be equal to the whole figure *ABCD*, multiplied by *XB*.

Demonstration. Put *n* for the number of equal parts into which *AB* is divided, at the points *FFF*, &c. Σ the sum of the ordinates *FD*, *FD*, *FD*, &c. or area of the whole space, and let the parts *AFD*, *FD*,

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FD, &c. wherein the small letters *a*, *b*, *c*, *d*, *e*, &c. are placed, be represented by those letters, then *BX*, the distance of the center of gravity, from the point of suspension *B*, will, by the principles of mechanics, be expressed by

$$\frac{na + n-1 + b + n-2 \times c + n-3 \times d, \&c. \dots n}{n}; \text{ but}$$

$$\begin{aligned} a+b+c+d, \&c. \dots n &= ABC \\ a+b \times c+d, \&c. \dots n-1 &= AFD \\ a+b+c+d, \&c. \dots n-2 &= AFD. \end{aligned}$$

Whence the sum of the infinite number of segments is equal to $na + n-1 \times b + n-2 \times c + n-3 \times d, \&c.$ continued till the number of terms is *n*, and is evidently equal to the above value of *BX*, multiplied by *Z*. *Q. E. D.*

CENTRONIA, in zoology, the name by which Dr. Hill calls the *echinus marinus*, or sea hedge-hog, or sea-egg; which he defines to be an animal living under the defence of a shelly covering, formed of one piece, and furnished with a vast number of spines, moveable at the animal's pleasure. The species of this animal are very numerous, and some of them extremely elegant.

CENTRUM TENDINOSUM, in anatomy, a point wherein the tendons of the muscles of the diaphragm meet.

CENTRY-BOX, a wooden cell, or lodge, to shelter the centinel, or centry, from the injuries of the weather.

CENTURION, among the Romans, an officer in the infantry, who commanded a century, or an hundred men.

The centurion *Primipilus* was the chief of the centuries: he was not under the command of any tribune, as all the rest were; he had four centuries under his direction, and guarded the standard and the eagle of the legion.

CENTURY, any thing divided into or consisting of an hundred parts.

The Roman people when they were assembled for the electing of magistrates, enacting of laws, or deliberating upon any public affair, were always divided into centuries; and voted by centuries, in order that their suffrages might be the more easily collected; whence these assemblies are called *comitia centuriata*. The Roman cohorts were also divided into centuries. See *COHORT*.

CENTURY, in chronology, the space of one hundred years.

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CENTUSSIS, in Roman antiquity, a coin containing an hundred asses.

CEODWALLA, king of Wessex, subdued the kingdom of Sussex, and annexed it to his dominions, in 686.

CEPHALIC, in a general sense, any thing belonging to the head, or its parts.

CEPHALIC MEDICINES, remedies for the disorders of the head.

Under this denomination are comprehended all those medicines which have a particular relation to the brain; so that cephalic remedies, in general, are such as promote the secretion and distribution of the spirits, and are commonly of a volatile, spirituous, and aromatic nature.

CEPHALIC VEIN, in anatomy, creeps along the arm between the skin and the muscles, and divides it into two branches; the external goes down to the wrist, where it joins the basilica, and turns up to the back of the hand; the internal branch, together with a small one of the basilica, makes the mediana.

CEPHALOPHARYNGÆI, in anatomy, the first pair of muscles of the upper part of the gullet, which proceed from beside the head and neck, and are spread more largely upon the tunic of the gullet.

CERPEUS, in astronomy, a constellation of the northern hemisphere, whose stars, in Ptolemy's catalogue, are thirteen; in Tycho's, eleven; in Hevelius's, forty; and in Flamsteed's, thirty-five.

CEPI CORPUS, in law, a return made by the sheriff, that upon a capias, or other like process, he has taken the defendant's body.

CERASTES, the horned snake, in zoology. It has two protuberances on its forehead, hard as a shell, from which it has its name.

CERASTUS, the cherry-tree, in botany, the name of a well-known genus of trees.

The several sorts of cherry-trees are propagated by budding or grafting the several kinds into stocks of the black or wild red cherries, which are strong shooters, and of a longer duration than any of the garden kinds. The stones of these two sorts are sown in a bed of light sandy earth in autumn, and the young stocks produced from them are to remain where they are sown till the second autumn; when in October they should be planted out into a rich earth, at three feet distance from row to row, and at about ten inches distant in the rows. The

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second year after the planting out, they will be fit to bud, if they are intended for dwarfs; but if they are designed for standards, they will not be tall enough till the fourth year; for they should be budded or grafted six feet from the ground.

The grafting is usually performed in summer, and the head of the stock is to be cut off in the beginning of March following, about six inches above the bud; and if the bud has shot well, and there be any fear of its being displaced by the winds, it must be gently tied up to the part of the stock left above it. The following autumn these trees will be fit to be removed and set where they are to remain, or they may be left two years. Many when they plant these trees in their places, lop off a great part of their heads; but this is an injury that often kills them: and when they escape, they seldom get well over it in less than four or five years. If the trees are intended for walls, it is advisable to plant dwarfs between the standards, that these may cover the lower part of the wall, while the others spread over the upper part; and when the dwarfs rise to fill the whole walls, the standards should be taken entirely away. When these trees are removed from the nursery, the dead fibres of the roots must be carefully taken off, and the upper part of the stock which is above the mud, must be cut off close down to the back-part of it: the bud must be placed directly from the wall.

Cherry-trees thrive best in a dry hazly loam: in a gravelly soil they are very subject to blights, and seldom stand long good. They should be placed at fourteen feet asunder, with a standard-tree between each two.

In pruning these trees their shoots should never be shortened, for they mostly produce their fruit from their extreme parts. All the fore-right shoots are to be displaced, and the others trained horizontally; and where there is a vacancy in the wall, the branches being shortened, will throw up a shoot or two to fill it. *Miller's Gard. Diet.*

CERATE, in pharmacy, one of the sorts of topical medicines, softer than a plaster, and harder than an ointment. The word is formed from the Latin, *ceratum*, wax, because wax is a principal ingredient in all compositions of this kind.

CERATOGLOSSUM, in anatomy, the name of a pair of muscles, serving to

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to draw the tongue directly into the mouth; but if only one of them acts, it draws the tongue to one side of the mouth.

CERRERUS, the name of a dog, with three heads, whom the poets made to be the porter of the infernal regions.

CERREALIA, in antiquity, the sacred rites of the goddess Ceres, instituted by Triptolemus. They were performed in so strictly religious a manner, that it was thought sufficient to pollute them, if any one at that time should lie with his wife. They made use of no wine in the sacrifices of Ceres: whence Plautus says, that Megadorus had made a marriage supper for Ceres, because he had provided no wine for the guests. The solemnity of the *ceresalia* passed from the Greeks to the Romans.

CEREMONIAL, belonging to or partaking of the nature of ceremonies: thus we say the ceremonial law, the ceremonial of princes, &c.

CEREMONY, *Ceremonia*, an assemblage of several actions, forms, and circumstances, serving to render a thing more magnificent and solemn; particularly used to denote the external rites of religious worship, the formalities of introducing ambassadors to audiences, &c.

Master of the CEREMONIES, an officer instituted by king James I. for the honourable reception of ambassadors and strangers of quality; he wears about his neck a chain of gold, with a medal having on one side an emblem of peace, with this motto, *BEATI PACIFICI*; and on the other, an emblem of war, with *DIEU ET MON DROIT*.

Assistant Master of the CEREMONIES, is to execute the employment in all points whensoever the master of the ceremonies is absent.

Marshall of the CEREMONIES, is their officer, being subordinate to them both.

CERES, in Pagan mythology, the goddess of the harvest. She, it is said, first taught men to plow and sow, to reap and house their corn, to make bread, and to cultivate gardens. She was the daughter of Saturn and Rhea, and in her youth was so beautiful, that her brother Jupiter fell in love with her, by whom she had Proserpine. Her next amour was with Neptune, by whom some say, she had a daughter named Hiera, and others, the horse Arion; however, she was so ashamed of this last affair, that she

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cloathed herself in mourning, and retired to a cave, where she continued till the world was in danger of perishing for want. But her retreat being discovered by Pan; Jupiter, at the intercession of the Fates, appeased her; and restored her to the world. While she was in Sicily, her daughter Proserpine was ravished by Pluto; when the disconsolate mother carried her complaints to Jupiter; but obtaining little satisfaction, she lighted her torches at Mount Etna, and mounting her car, set out in search of her daughter, in which search she met with various adventures; particularly in Lycia, where, being thirstily, and desirous of drinking at a spring, the clowns of the country, muddled the water, on which the incensed goddess transformed them into frogs.

Ceres had several names: she was called *Magna Dea*, or the Great Goddess, from her bounty in supporting mankind; *AlmaATRIX*, from her impregnating all seeds and vegetables; *Euclea*, from her verdure; *Melaina*, from her black clothing.

She was usually represented of a tall majestic stature, with a fair complexion, languishing eyes, and yellow or flaxen hair. Her head was crowned with poppies, or ears of corn; her right hand filled with the same materials; in her left she held a lighted torch, and her breasts were represented full and swelling. When seen in a car or chariot, she is drawn by dragons. Mythologists have given very different accounts of the origin of this goddess: some suppose her to be the earth, the nurse of mankind; and imagine Proserpine to be the corn, which lies long concealed before it sprouts forth.

Cicero speaks of a temple of Ceres at Catania in Sicily, where was a very ancient statue of that goddess; but entirely concealed from the sight of men, every thing being performed by matrons and virgins.

CERINTHE, honey-sort; in botany, a genus of plants.

CERTIFICATE, in law, a writing made in any court, to give notice to another court of any thing done therein. The clerks of the crown, *Justices*, and the peace, are to make certificates into the King's Bench, of the tenor of all judgments, convictions, outlawries, &c.

CERTIFICATION, *of Affirmation*, is a writing granted for the recovery of a debt, or other thing, in a court of law.

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amining, passed by assizes before justices. This writ is used where a person appears, by his bailiff, to an assize brought by another, and has lost the day.

CERTIORARI, a writ which issues out of the Chancery, directed to an inferior court, to call up the records of a cause there depending, in order that justice may be done: And this writ is obtained upon complaint that the party who seeks it has received hard usage, or is not like to have an impartial trial in the inferior court.

A certiorari is made returnable either in the King's-Bench, Common-Pleas, or in Chancery. It is not only issued out of the court of Chancery, but likewise out of the King's-Bench, in which last-mentioned court it lies where the king would be certified of a record. Indictments from inferior courts, and proceedings of the quarter-sessions of the peace, may also be removed into the King's-Bench by a certiorari; and here the very record must be returned, and not a transcript of it; though usually in Chancery, if a certiorari be returnable there, it removes only a tenor of the record.

CERTITUDE, considered in the things or ideas which are the objects of our understanding, is a necessary agreement or disagreement of one part of our knowledge with another; as applied to the mind, it is the perception of such agreement or disagreement, or such a firm well-grounded assent as excludes not only all manner of doubt, but all conceivable possibility of a mistake. There are three sorts of certitude, or assurance, according to the different natures and circumstances of things.

1. A physical or natural certitude, which depends upon the evidence of sense; as, that I see such or such a colour, or hear such or such a sound: nobody questions the truth of this, where the organs, the medium, and the object are rightly disposed. 2. Mathematical certitude is that arising from mathematical evidence; such as, that the three angles of a triangle are equal to two right ones. 3. Moral certitude is that founded on moral evidence, and is frequently equivalent to a mathematical one; as, that there was formerly such an emperor as Julius Cæsar, because the historians of those times have recorded it, and no man has ever disproved it since. This affords a moral certitude, in common sense so great,

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that one would be thought a fool or a madman for denying it.

CERVANTES SAAVEDRA (MIGUEL DE) a celebrated Spanish writer, born at Seville in 1549. It is said he served as a common soldier at the famous battle of Lepanto, where he discovered great valour, but had the misfortune to loose his left-hand. He however at length enjoyed the post of secretary to the duke of Alba: when living at Madrid he observed that the duke of Lerma, prime minister to Philip III, and others of the Spanish nobility were infatuated with notions of chivalry, on which he composed his romance of Don Quixote, a work which has immortalized his name: in this romance he ridiculed in a very ingenious, delicate, and instructive manner, the duke of Lerma, and those of his nation who were fond of knight-errantry. He wrote other works, and died in 1616.

CERVICAL NERVES, in anatomy, are eight pair of nerves, so called as having their origin in the neck. See NERVE. From these eight pair there are innumerable branches distributed through the muscles of the head, the neck, the scapula, and the humerus.

CERVICAL VESSELS, in anatomy, the arteries, veins, &c. which pass through the vertebrae, and muscles of the neck, up to the skull.

CERVICALES DESCENDENTES, a pair of muscles, antagonists to the sacro-lumbares; coming from the third, fourth, fifth, and sixth vertebrae of the neck.

CERVIX, in anatomy, denotes the hinder part of the neck, as contradistinguished from the fore-part, called *jugulum*, or the throat. See NECK.

CERVIX of the Uterus, or the neck of the uterus, that oblong canal or passage between the internal and external orifices of the womb, whence it is also called vagina. See UTERUS and VAGINA.

CERUMEN, ear-wax, or that natural excrement collected in the meatus auditorius, and discharged from the glands of those parts through the membrane which lines them. It is fluid on its first discharge, but by its continuance it becomes thicker, more solid, viscid, of the consistence of clay, and of a bitterish taste.

CERUSE, or **CERUSS**, white-lead, a sort of calx of lead, made by exposing plates of that metal to the vapour of vinegar.

Cerust

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CERUS is used externally, either mixed in ointments, or by sprinkling it on old gleetings and watery ulcers, and in many diseases of the skin. If, when it is reduced into a fine powder, it is received in with the breath in inspiration, and carried down into the lungs, it causes terrible asthmas, that are almost incurable, and at last generally prove fatal. Sad instances of the very pernicious effects of this metal are too often seen among those persons who work lead in any form, but particularly among the workers in white lead. The painters use it in great quantities, and that it may be afforded cheap to them, it is generally adulterated with common whiting; the English and Dutch cerus are very bad in this respect: the Venetian ought always to be used by apothecaries.

CERUSS of Antimony, a medicine prepared by distilling powdered regulus of antimony with spirit of nitre, till no more fumes arise; what remains in the retort being pulverised and washed, makes the cerus of antimony, which is esteemed a powerful diuretic.

CERVUS, the stag or deer-kind, in zoology, a genus of quadrupeds of the order of the pecora. Under this genus are comprehended the camelo-pardalis, the alce or elk, the tangifer or rein-deer, the capreolus, and the stag, and fallow-deer. See **CAMELO-PARDALIS**, &c.

CESSION, in law, an act by which a person surrenders and transmits to another person, a right which belonged to himself. Cession is more particularly used in the civil law for a voluntary surrender of a person's effects to his creditors, to avoid imprisonment.

CESSION, in the ecclesiastical law, when an ecclesiastical person is created a bishop, or when a parson of a parish takes another benefice without dispensation, or being otherwise qualified. In both these cases their first benefices become void by cession, without any resignation; and to those livings that the person had, who was created bishop, the king may present for that time, whosoever is patron of them; and in the other case the patron may present; but by dispensation of retention, a bishop may retain some or all the preferments he was intitled to before he was made bishop.

CESTUS, among ancient poets, a fine embroidered girdle said to be worn by Venus, to which Homer ascribes the faculty of charming and conciliating love.

C H A

CETACEOUS, an appellation given to a class or order of fishes, otherwise called plagiuri. See **PLAGIURI**. The term cetaceous, though properly only applicable to the whale kind, has nevertheless been used to denote any large fish, as the shark, sea-fox, &c.

CETUS, in astronomy, a constellation of the southern hemisphere, comprehending twenty-two stars in Ptolemy's catalogue, twenty-one in Tycho Brahe's, and in the Britannic catalogue seventy-eight.

CHÆROPHYLLUM, chervil, in botany, an umbelliferous plant. It is a native of the southern parts of Europe, and sown annually with us in gardens. Chervil is a salubrious culinary herb; grateful, both to the palate and stomach; slightly aromatic; gently aperient and diuretic. The expressed juice is recommended, by Riverius and others, in dropsies; and Geoffroy relates, that he has found it, from experience, of remarkable service in this disease; that it acts mildly and without irritation, and abates inflammatory symptoms.

CHÆTIA, in zoology, a sort of insect called in English, the hair-worm of Guinea-worm.

CHAFERY, a forge in an iron-mill, where the iron is hammered out into complete bars, and brought to perfection.

CHAFE-WAX, an officer in the chancery, who fits the wax for sealing writs, patents, and other instruments issued out from that court.

CHAFF, in husbandry, the refuse or straw that is separated from corn, by screening or winnowing it.

CHAFF-FINCH, in ornithology, the English name of the fringilla, with a red-coloured breast, and black wings spotted with white.

The chaff-finch is a hardy bird, living upon any kind of seeds.

CHAN, *Catena*, a long piece of metal composed of several links, engaged the one in the another. They are made of divers metals, some round, some flat, others square; some single, some double; and serve to so many uses, that it would be tedious to give an account of them all. Chain also implies a string of gold, silver, or steel-wire, wrought like a tissue, which serves to hang watches, time-cases, and other valuable toys upon. It is also worn round the neck as a badge of office or dignity, by the Lord Mayor of London, Sheriffs, &c.

CHAIN.

CHAIN-SHOT, in artillery is formed by having a short chain which fastens two cannon-balls together. These are more particularly used in the sea-service for cutting and mangling a ship's rigging, and carrying away her masts.

CHAIN, in surveying, an instrument of iron-wire, distinguished into an hundred equal parts, called links, being used to measure lengths in surveying of land. They are of several sorts, as

1. A chain of 100 feet long, each link being one foot; at each tenth foot there is a plate of brass, with a figure engraved upon it, shewing readily how many links are from the beginning of the chain; and for more ease in reckoning, there is, or should be, a brass ring at every five links; that is, one between every two plates.

This chain is most convenient for measuring large distances.

2. A chain of $16\frac{1}{2}$ feet in length, and made so as to contain a hundred links, with rings at every tenth link. This chain is most useful in measuring small gardens or orchards, by perch or pole measure.

3. A chain of four poles or perches in length, called Gunter's chain, which is 66 feet, or 22 yards; for each perch contains $16\frac{1}{2}$ feet. This whole chain is divided into a hundred links; whereof 25 is an exact perch or pole; and for readily ascending there is usually a remarkable distinction by some plates or large rings, at the end of 25 links; also at the end of every tenth link it is usual to fasten a plate of brass with notches in it, shewing how many links there are from the beginning of the chain; and this chain, of all others, is the most convenient for land measure.

When you are to measure any line by this chain, you need have regard to no other denomination than chains and links only, which set down with a full point between them. Thus, for example, if you find the side of a close to be 30 chains 14 links, it must be set down thus, 30.14. But if the links be under 10, a cypher must be prefixed so 30-chains 7 links must be set down 30.07.

When in the field, &c. be a square or parallelogram, if you multiply the length expressed in chains and links, by the breadth expressed in the same manner, and cut off five figures from the product, those toward the left hand will be acres; then multiply the figures separated by four, cutting off the same number of fi-

gures, and you will have the roods, or quarters of an acre; and lastly, multiply the remaining figures by 40, cutting off five as before, and you will have the square perches.

Example. Let it be required to find the area of a field, in form of a parallelogram, whose length is 14 chains 19 links, and breadth 6 chains 5 links.

Then $14\ 10 \times 6.05 = 8.53050$; and $53050 \times 4 = 2.12200$; and $12200 \times 40 = 4.88000$. So that the area of the field is eight acres, 2 roods, and almost five perches.

The same method must be taken to find the area of all other figures, regard being had to the method laid down under each; viz. for triangles to multiply the base by half the perpendicular, &c.

CHAIR, *Cathedra*, anciently the suggestion, or pulpit, whence the priest or public orator spoke to the people. See **CATHEREDRA**. It is still applied to the place whence professors or regents in the universities, deliver their lectures: thus we say, the professor's chair. It is also applied to the chief magistrate of a city, or rather to the seat appropriated to his office: thus we say, next the chair.

CHAIR-MAN, the president or speaker of an assembly. See **PRESIDENT**.

CHALCEDONY, *Chalcedonius*, in natural history, a genus of semi-pellucid gems, of an even and regular, not tabulated texture: of a semi-opaque, crystalline basis, and variegated with different colours, dispersed in form of mists and clouds. Of this genus there are many species, as the bluish white chalcedony; the brownish black chalcedony; or smoaky jasper or capnitis of the ancients; and the yellow and red chalcedony. All the chalcedonies give fire readily with steel, and make no effervescence with aqua-fortis.

CHALDRON, an English dry measure, consisting of thirty-six bushels, heaped up according to the sealed bushel kept at Guildhall, London; but on ship-board, twenty-one chaldron of coals are allowed to the score.

CHALICE, the cup or vessel used to administer the wine in the sacrament; and by the Roman catholics in the mass. The use of the chalice, or communicating in both kinds, is by the church of Rome denied to the laity, who communicate only in one kind, the clergy alone being allowed the privilege of communicating in both kinds.

CHALK

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CHALK, in natural history, the English name of the white, dry marle, with a dusty surface, found in hard masses, and called by authors, *creta*, and *terra creta*. It ferments more strongly with acids than any other earth, and burns to lime. As a medicine chalk deserves, perhaps, the highest place among the alkaline absorbents; nor is it less useful in many of the ordinary affairs of life. Its use in cleaning various utensils is well known, and it is in no small repute as a manure, especially for cold sour lands; in which intention the soft unctuous chalk is most proper, as the dry, hard, and strong chalk is for lime. It is a great improver of lands, and will even change the very nature of them: however, it is most advisable to mix one load of chalk, with two or three of dung, mud or fresh mould, whereby it will become a lasting advantage to the ground: the common allowance is fourteen loads of chalk to every acre.

Black CHALK, among painters, a kind of orchreous earth, of a close structure, and fine black colour, used in drawing upon blue paper.

Red CHALK, an indurated clayey ochre, common in the colour-shops, and much used by painters and artificers.

CHALKY-LAND, land lying on a chalky bottom, whereby it is strongly impregnated with the virtues of the chalk. These lands naturally produce may-weed, poppies, &c. taintoin and trefoil likewise agree with them; and their best produce of corn is barley or wheat, though oats will likewise do well on them.

The best manure for chalky lands is rags, dung, and folding of sheep. If rain happens to fall on them just after sowing, it binds the earth so hard, that the corn cannot pass through it; to prevent which misfortune, it is usual to manure these lands with half-rotten dung, with which some mix sand.

CHALLENGE, a cartel, or invitation to a duel. See **DUEL**.

CHALLENGE, in law, an exception made to jurors, who are returned to a person on a trial. This challenge is made either to the array, or to the polls; to the array, when exception is taken to the whole number of jurors impanelled; and to the polls, when an exception is made to one or more of the jury as not indifferent.

Challenge to the jurors is likewise divided into challenge principal or peremptory, and challenge for cause; that is, upon cause or reason alledged. Challenge prin-

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cipal is what the law allows without any cause alledged, or further examination: as a prisoner arraigned at the bar for felony, may challenge peremptorily the number allowed him by law, being twenty, one after another, alledging no further cause than his own dislike: and the jurors so challenged, shall be put off, and new ones taken in their places. In cases of treason and petit-treason, the number of thirty-five jurors may be peremptorily challenged, without shewing any cause; and more, both in treason and felony, may be challenged, shewing cause. If those who prosecute for the king challenge a juror, they are to assign the cause; and if the cause alledged be not a good one, the inquest shall be taken. When the king is party, if the other side challenge any juror above the number allowed, he ought to shew cause of his challenge immediately, while the jury is full, and before they are sworn. There may be a principal cause of challenge in civil actions, and a challenge for favour. The principal challenge is in respect of partiality, or default of the sheriff, &c. Challenge for favour, is when the plaintiff or defendant is tenant to the sheriff, or if the sheriff's son has married the daughter of the party, &c.

CHALLENGE, among hunters. When hounds or beagles, at first finding the scent of their game, presently open and cry, they are said to challenge.

CHALYBEAT, in medicine, an appellation given to any liquid, or wine or water impregnated with particles of iron or steel. Dr. Short, in his history of the mineral waters, has classed them into the warm purging chalybeat, diuretic chalybeat, purging and plain sulphur-water.

Of the warm purging chalybeat waters, that of Buxton seems to be the principal.

The purging chalybeat contains a mineral spirit, sulphur, vitriol, nitre, and sea-salt, with a calcareous earth, of which some particles are attracted by the load-stone, which proves them to be iron: of these the Scarborough-spa is now in the greatest reputation.

The diuretic chalybeat water consists of much the same principles with the former class, only the salts are in less proportion; of these there are great numbers in Yorkshire.

CHAMADE, in war, a signal made by beat of drum for a conference with the enemy, when any thing is to be proposed; as a cessation of arms to bring off the dead, or a signal made by the besieged when they

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they have a mind to deliver up a place upon articles of capitulation: in which case there is a suspension of arms, and hostages delivered on both sides.

CHAMÆDRYS, germander, in botany, a low creeping shrubby plant, which grows wild in some of the woods of France, Germany, and Switzerland: but with us it is raised in gardens, and flowers in June and July.

CHAMÆLEON, *Chamaeleo*, in zoology, a species of lizard with a short round tail, five toes on each foot, two or three of which adhere together. See **LIZARD**.

CHAMÆMBLUM, camomile, in botany, a plant, the leaves and flowers of which have a strong, not ungrateful smell; and a very bitter nauseous taste. The flowers are somewhat bitterer, and considerably more aromatic than the leaves; and the yellow disk of the flower is, in both respects, far stronger than the white petals. The smell, as well as the taste, is rather improved than weakened by drying, and does not soon suffer any considerable diminution in keeping. This plant, besides its general virtues as a bitter, is supposed to have some degree of a carminative, anodyne, and antispasmodic power, depending on its odorous matter. It is recommended in cholics of different kinds, particularly such as arise from flatulencies or cold; in hysterical and hypochondriacal disorders, and spasmodic and nephritic pains; in the pains of child-bed women, and deficiencies of the uterine purgations; and intermitting fevers, where a visciditv of the humours, or obstructions of the viscera, render the Peruvian bark ineffectual or prejudicial. In this last intention, the camomile is generally assisted by fixed alkaline salts, sal-ammoniac, or rather aperients, and often also by corroborating materials.

The dose of the dry flowers, in substance, is from ten to twelve grains to half a dram or more; in decoction or infusion, two drams.

The leaves and flowers are frequently employed externally, in discutient and antiseptic fomentations, and in emollient and carminative glysters. They appear, from Dr. Pringle's experiments, to stand very high in the scale of antiseptics; the soluble part of the flowers resisting the putrefaction of animal flesh, with a power at least of one hundred and twenty times greater than sea salt.

CHAMÆPITYS, ground-pine, in botany, a low, hairy, creeping plant, which is annual, grows wild in sandy and

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chalky grounds in some parts of England, and flowers in July. The leaves of ground-pine are recommended as aperients, and corroborants of the nervous system; and said to be particularly serviceable in female obstructions, paralytic disorders, and when continued for a length of time, either by themselves or with the assistance of germander, in rheumatic, ischiadic, and gouty pains. The leaves in substance, dried and powdered, are directed to be given from half a dram to a dram. Their virtues are extracted both by water and spirit, but most perfectly by the latter.

CHAMBER, in building, any room or apartment situated between the lowermost and the uppermost rooms: in most houses there are two, in others three, or more stories of chambers.

Privy CHAMBER. Gentlemen of the privy chamber, are servants of the king, who attend on him and the queen at court, in their diversions, &c. their number is forty-eight under the lord chamberlain, twelve of whom are in quarterly waiting, and two of these lie in the privy chamber. In the absence of the lord-chamberlain, or vice-chamberlain, they execute the king's orders: at coronations, two of them personate the dukes of Aquitaine and Normandy: and six of them, appointed by the lord chamberlain, attend ambassadors from crowned heads to their audiences, and in public entries. The gentlemen of the privy chamber were instituted by Henry VII.

CHAMBER, in policy, the place where certain assemblies are held, also the assemblies themselves. Of these, some are established for the administration of justice, others for commercial affairs.

CHAMBER, in war, is said to consist of the three following. 1. Of a powder-chamber, or bomb-chamber, a place sunk under ground for holding the powder, or bombs, where they may be out of danger, and secured from the rain. 2. Of the chamber of a mine, the place, most commonly of a cubical form, where the powder is confined. And 3. Of the chamber of a mortar, that part of the chase much narrower than the rest of the cylinder, where the powder lies.

CHAMBERLAIN, an officer charged with the management and direction of a chamber. See **CHAMBER**. There are almost as many kinds of chamberlains as chambers, the principal whereof are as follow.

Lord CHAMBERLAIN of Great Britain,

Britain, the sixth great officer of the crown, to whom belongs livery and lodging in the king's court; and there are certain fees due to him from each archbishop or bishop, when they perform their homage to his majesty; and from all peers, at their creation, or doing their homage.

At the coronation of every king, he is to have forty ells of crimson velvet, for his own robes. This officer, on the coronation-day, is to bring the king his shirt, coat, and wearing cloaths; and after the king is dressed, he claims his bed, and all the furniture of his chamber, for his fees: he also carries at the coronation, the coat, gloves, and linen to be used by the king, and the robes-royal and crown: he dresses and undresses the king on that day, waits on him before and after dinner, &c. To this officer belongs the care of providing all things in the house of lords in the time of parliament; to him also belongs the government of the palace of Westminster: he disposes likewise of the sword of state, to be carried before the king, to what lord he pleases.

Lord CHAMBERLAIN of the Household, an officer who has the oversight and direction of all officers belonging to the king's chambers, except the precinct of his majesty's bed-chamber. He has the oversight of the officers of the wardrobe at all the king's houses, and of the removing wardrobes, or of beds, tents, revels, music, comedians, hunting, messengers, &c. retained in his majesty's service. He moreover has the oversight and direction of the serjeants at arms, of all physicians, apothecaries, surgeons, barbers, the king's chaplains, &c. and administers the oath to all officers above stairs.

Other chamberlains are those of the king's court of exchequer, of North Wales, of Chester, of the city of London, &c. in which cases this officer is generally the receiver of all rents and revenues belonging to the place whereof he is chamberlain. In the exchequer there are two chamberlains who keep a countment of the pells of receipts and exits, and have certain keys of the treasury, records, &c.

CHAMBERLAIN of London keeps the city money, which is laid up in the chamber of London: He also presides over the affairs of masters and apprentices, and makes free of the city, &c. His office lasts only a year, but the custom usually obtains to re-choose the same person, unless charged with any misdemeanor in his office.

Vice-CHAMBERLAIN. See *Vice-CHAMBERLAIN*.

CHAMOIS, or CHARMOIS-GOAT, in zoology, the name of the rupicapra, a creature of the goat-kind, with erect and short but-hooked horns. It is from the skin of this animal that the chamois leather is made.

CHAMPATRY, or CHAMPETRY, in law, a contract made with either the plaintiff or defendant in any suit at law, for giving part of the land, debt, &c. sued for, to the party who undertakes the process at his own proper charges, provided he succeeds therein.

CHAMPION, one who undertakes a combat in the place or quarrel of another; and sometimes the word is used for him who fights in his own cause.

CHAMPION of the King, a person whose office it is, at the coronation of our kings, to ride armed into Westminster-hall, while his majesty is at dinner there, and, by the proclamation of a herald, make challenge to this effect, viz. "That if any man shall deny the king's title to the crown, he is there ready to defend it in single combat, &c." which done, his majesty drinks to him, and sends him a gilt cup, with a cover, full of wine, which the champion drinks, and has the cup for his fee. The first champion of England was in 1377.

CHANCE, in a general sense, a term applied to events, not necessarily produced, as the natural effects of any proper foreknown cause. We certainly mean no more in saying that a thing happened by chance, than that its cause is unknown to us: for chance itself is no natural agent or cause; it is incapable of producing any effect, and is no more than a creature of man's own making; for the things done in the corporeal world, are really done by the parts of the universal matter, acting and suffering, according to the laws of motion established by the author of nature.

Chance is also confounded with fate and destiny.

CHANCE is more particularly used for the probability of an event, and is greater or less, according to the number of chances by which it may happen, compared with the number of chances by which it may either happen or fail. Thus, if any event has three chances to happen, and two to fail, the probability of its happening may be estimated 3-5ths, and the probability of its failing

ments. Therefore if the probability of happening and failing be added together, the sum will always be equal to unity.

If the probabilities of happening and failing are unequal, there is what is commonly called odds for or against the happening or failing, which odds are proportional to the number of chances for happening or failing.

If there is a certain number of chances by which the possession of a sum can be secured, and also a certain number of chances by which it may be lost, that sum may be insured for that part of it, which shall be to the whole; as the number of chances there is to lose it, is to the number of all the chances. For the manner of applying the doctrine of chances to gaming and annuities, see titles GAMING and INTEREST.

CHANCE-MEDLEY, in law, the accidental killing of a man, not altogether without the killer's fault, though without any evil intention; and is where one is doing a lawful act, and a person is killed thereby: for if the act be unlawful it is felony. The difference betwixt chance-medley and man-slaughter is this; if a person casts a stone, which happens to hit one, and he dies, or if a workman, in throwing down rubbish from a house, after warning to take care, kill a person, it is chance-medley, and misadventure: but if a person throws stones on the highway, where people usually pass; or a workman throws down rubbish from a house in cities and towns where people are continually passing; or if a man whips his horse in the street, to make him gallop, and the horse runs over a child, and kills it, it is man-slaughter: but if another whips the horse, it is man-slaughter in him, and chance-medley in the rider. In chance-medley the offender forfeits his goods, but has a pardon of course.

CHANCEL, a part of the fabric of a Christian church; between the altar and balustrade that incloses it, where the minister is placed at the celebration of the communion.

CHANCEL, among us, is also the rector's freehold and part of his glebe, and therefore he is obliged to repair it; but where the rectory is impropriate, the impropriator must do it.

CHANCELLOR, an officer supposed originally to have been a notary or scribe under the emperors, and named *cancellarius*, because he sat behind a lattice, called in Latin *cancellus*, to avoid being crowded by the people.

Lord High CHANCELLOR of Great Britain, is the highest honour of the long robe, being made so, *per traditionem magni sigilli, per dominium regem*, and by taking the oaths: he is the first person of the realm next after the king and princes of the blood, in all civil affairs; and is the chief administrator of justice next to the sovereign, being the judge of the court of chancery. All other justices are tied to the strict rules of the law in their judgment: but the chancellor is invested with the king's absolute power, to moderate the written law, governing his judgment purely by the law of nature and conscience, and ordering all things according to equity and justice.

The lord-chancellor not only keeps the king's great-seal, but also all patents, commissions, warrants, &c. from the king are, before they are signed, perused by him: he has the disposition of all ecclesiastical benefices in the gift of the crown, under twenty pounds a year, in his majesty's books; and he is speaker of the house of lords.

CHANCELLOR of a Diocese, a lay officer under a bishop, who is judge of his court. See *BISHOP'S COURT*.

CHANCELLOR of the Duchy of Lancaster, an officer appointed to determine controversies between the king and his tenants of the Duchy-lands and otherwise to direct all his majesty's affairs belonging to that court. See *DUCHY-COURT*.

CHANCELLOR of the Exchequer, an officer who presides in that court, and takes care of the interest of the crown. He is always in commission with the lord-treasurer for the letting of crown-lands, &c. and has power, with others, to compound for forfeitures of lands, upon penal statutes: he has also a great authority in managing the royal revenues, and in matters relating to the first fruits.

CHANCELLOR of the Order of the Garter, an officer who seals the commissions and mandates of the chapter and assembly of the knights, keeps the register of their proceedings, and delivers acts thereof, under the seal of their order.

CHANCELLOR of an University, he who seals the diplomas, or letters of degrees, provision, &c. given in the university. The chancellor of Oxford is usually one of the first nobility, chosen by the students themselves in convocation. He is their chief magistrate; his office is *ducere vitam*, to govern the university, preserve and defend its rights and privileges, convoke assemblies, and do justice among the

the members under his jurisdiction. Under the chancellor is the vice-chancellor, who is elected by the university in convocation: he is always the head of some college, and in holy orders. His proper office is to execute the chancellor's power, to govern the university according to her statutes, to see that officers and students do their duty, that courts be duly called, &c. When he enters upon his office, he chooses four provice chancellors out of the heads of the colleges, to execute his power in his absence.

The chancellor of Cambridge is also usually one of the prime nobility, and in most respects the same as that at Oxford, only he does not hold his office *durante vita*, but may be elected every three years. Under the chancellor there is a commissary, who holds a court of record for all privileged persons and scholars under the degree of master of arts, where all causes are tried and determined by the civil and statute-law, and by the custom of the university. The vice-chancellor of Cambridge is chosen annually, by the senate, out of two persons nominated by the heads of the several colleges and halls.

CHANCERY, the grand court of equity and conscience, instituted to moderate the rigour of the other courts that are bound to the strict letter of the law.

The jurisdiction of this court is of two kinds, ordinary or legal, and extraordinary or absolute. The ordinary jurisdiction is that wherein the lord chancellor who is judge of this court, in his proceedings and judgment is bound to observe the order and method of the common law; in such cases the proceedings, which were formerly in Latin, but now in English, are filed or enrolled in the petty-bag office; and the extraordinary, or unlimited power, is that jurisdiction which the court exercises in cases of equity, wherein relief is to be had by bill and answer. The ordinary court holds plea of recognizances acknowledged in the chancery, writs of *scire facias*, for repeal of the king's letters patent, &c. also of all personal actions, by or against any officer of the court, and of several offences and causes by act of parliament: all original writs, commission of bankrupts, of charitable uses, of idiots, lunacy, &c. are issued hence. The extraordinary court gives relief for and against infants, notwithstanding their minority; for and against married women, notwithstanding their coverture. All frauds and deceits, for which there is no redress at

common law, all breaches of trust, confidences, and accidents, as to relieve obligers, mortgagers, &c. against penalties and forfeitures, where the intention was to pay the debt, are here remedied. But in all cases where the plaintiff can have his remedy at law, he ought not to be relieved in chancery; and a thing which may be tried by a jury, is not triable in this court.

The court of chancery will not retain a suit for any thing under ten pounds value, except in cases of charity, nor for lands, &c. under forty shillings per ann. In this court all patents, most sorts of commissions, deeds between parties touching lands and estates, treaties with foreign princes, &c. are sealed and enrolled. Out of it are issued writs to convene the parliament and convocation, proclamations, and charters, &c.

CHANDELIER, in fortification, a kind of moveable parapet, consisting of a wooden frame, made of two upright stakes, about six feet high, with cross planks between them; serving to support fascines to cover the pioneers. The chandeliers differ from blinds only in this, that the former cover the men only before, whereas the latter cover them also above. They are used in approaches, galleries, and mines, to hinder the workmen from being driven from their stations.

CHANGE, in the manege. To change a horse, or change hand, is to turn or bear the horse's head from one hand to the other, from the right to the left or from the left to the right. You should never change your horse without pushing him forward upon the turn, and after the turn, push him on straight, in order to stop.

CHANGE of Seed, in husbandry, the sowing a field or spot of ground first with one kind of seed, then another, and then a third kind. This practice, however universal, and perhaps necessary in the common method of husbandry, is nevertheless superseded or rendered useless by the new method called horse-hoeing husbandry. See **HORSE-HOEING**.

CHANNEL, in architecture, that part of the Ionic capital under the abacus, and lies open upon the echinus or eggs, which has the centers or turnings on every side to make the volutes.

CHANNEL of the Volute, in the Ionic capital, the face of the circumvolution inclosed by a listel.

CHANNEL, in geography, an arm of the

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the sea, or a narrow sea between two continents, or between a continent and an island. Such are the British channel, St. George's channel, &c.

CHANNEL of a River, the bed of a river. See RIVER.

CHANNEL of the Mouth of a Horse, that concavity in the middle of the lower jaw, appointed for a place to the tongue; which being bounded on each side by the bars, terminates in the grinders. It should be large enough not to be pressed with the bit mouth.

CHANTOR, a singer in the choir of a cathedral. The word is almost grown obsolete, chorister or singing-man being commonly used.

CHANTOR is used by way of excellence for the preceptor or master of the choir, which is one of the first dignities of the chapter.

CHANTRY, or **CHAUNTRY**, a church or chapel endowed with lands, &c. for the maintenance of one or more priests to say mass for the souls of the donors. Hence,

CHANTRY-RENTS, are still paid to the crown by the purchasers of those lands.

CHAOS, that confusion in which matter lay when newly produced out of nothing at the beginning of the world, before God, by his almighty word, had put it into the order and condition wherein it was after the six days creation.

Far from being of opinion that this notion of a chaos was particular to Moses, all nations, barbarous or civilized, seem to have preserved one common tradition of a state of darkness and confusion prior to the creation of the world; and it is probable they imbibed this notion from the same common source, notwithstanding the ignorance of the people, and the fictions of the poets, have so much disguised it.

CHAPE, among scabbard-makers, the metalline plate fixed on the end of a scabbard, to prevent the point of the sword from passing through it.

CHAPE, among sportsmen, the tip of a fox's bush.

CHAPPEAU, in heraldry, an ancient cap of dignity worn by dukes, being scarlet-coloured velvet on the outside, and lined with fur. It is often borne above an helmet, instead of a wreath, under gentlemen's crests.

CHAPEL, or **CHAPPEL**, a place of divine worship, served by an incumbent, under the denomination of a chaplain.

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Knights of the CHAPEL, called also poor knights of Windsor, were instituted by Henry VIII. in his testament. Their number was at first thirteen, but has been since augmented to twenty-six. They assist in the funeral services of the kings of England: they are subject to the office of the canons of Windsor, and live on pensions assigned them by the order of the garter. They wear a blue or red cloak, with the arms of St. George on the left shoulder.

CHAPITERS, in architecture, the same with capitals. See CAPITAL.

CHAPLAIN, an ecclesiastic who officiates in the chapel.

CHAPLET, a string of beads used by the Roman catholics to count the number of their prayers. The invention of it is ascribed to Peter the hermit, who probably learned it of the Turks.

CHAPLET, in architecture, a small ornament carved into round beads, pearls, olives, and paternosters, as is frequently done in baguettes.

CHAPTER, *Capitulum*, in ecclesiastical policy, a society of clergymen belonging to the cathedrals and collegiate churches.

CHAPTER is applied to assemblies held by religious and military orders for regulating their affairs, and also to the hall where such assemblies are convoked. In monasteries, the chapter is usually in the middle of the cloisters.

CHAPTER, in matters of literature, a division in a book for keeping the subject treated of more clear and distinct. St. Augustine compares them to inns, inasmuch as they refresh the reader, as the other the traveller.

CHARA, in botany, a genus of plants, without either flower-petals, or pericarpium, having a single ovato-oblong seed.

CHARACTER, any mark whatever, serving to represent either things or ideas: thus, letters are characters, types, or marks of certain sounds; words, of ideas, &c. See LETTER, &c.

Characters are of infinite advantage in almost all sciences, for conveying, in the most concise and expressive manner, an author's meaning: however, such a multiplicity of them, as we find used by different nations, must be allowed to be a very considerable obstacle to the improvement of knowledge: several authors have therefore attempted to establish characters that should be universal, and which each nation might read in their own language, and consequently, which should be real,

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not nominal or arbitrary, but expressive of things themselves; thus, the universal character for a horse would be read by an Englishman, *horse*; by a Frenchman, *cheval*; by the Latins, *equus*, &c.

Literal characters may be divided, with respect to the nations among whom they have been invented, into Greek characters, Hebrew characters, &c. The Latin characters now used through all Europe, were formed from the Greek, as the Greek was from the Phœnician, and the Phœnician, as well as the Chaldee, Syriac, and Arabic characters, were formed from the ancient Hebrew. It was in 1091 that the Gothic characters, invented by Ulfilas, were abolished, and the Latin ones established in their room.

CHARACTER, is used in several of the arts, for a symbol, contrived for the more concise and immediate conveyance of the knowledge of things. We shall here subjoin the principal of them.

CHARACTERS in Algebra. The first letters of the alphabet, as *a, b, c, d, &c.* are generally the characters of the given quantities; and the last letters, as *x, y, z, &c.* the characters of the quantities sought. Some however use the consonants to represent the known, and the vowels to represent the unknown quantities.

m, n, r, s, &c. are the characters of indeterminate exponents, whether ratios or powers. Thus *xm, yn, zr, &c.* imply undetermined powers of different kinds; *mx, ny, rz*, different multiples, or submultiples, of the quantities *x, y, z*, according as *m, n, r*, are either whole numbers or fractions.

+ *plus*, or *more*, is the sign of real existence of the quantity it stands before, and is called an affirmative or positive sign. It is also the mark of addition: thus *a+b*, or *6+9*, implies that *a* is to be added to *b*, or 6 added to 9.

- *minus*, or *less*, before a single quantity, is the sign of negation or negative existence, shewing the quantity to which it is prefixed to be less than nothing. But between quantities it is the sign of subtraction: thus *a-b*, or *8-4*, implies *b* subtracted from *a*, or 8 after 4 has been subtracted.

= *equal*, the sign of equality, though Des Cartes and some others use this marked $\propto$; thus, *a=b* signifies that *a* is equal to *b*. Wolfius and some others use the mark $\equiv$ for the identity of ratios.

X *into*, or *with*. The sign of multiplication, shewing that the quantities on each side the same are to be multiplied by

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one another, as *a x b* is to be read *a* multiplied into *b*; *4 x 8*, the product of 4 multiplied into 8. Wolfius and others make the sign of multiplication a dot between the two factors; thus, *5.4* signifies the product of 5 and 4. In algebra the sign is commonly omitted, and the two quantities put together; thus, *bd* expresses the product of *b* and *d*. When one or both of the factors are compounded of several letters, they are distinguished by a line drawn over them; thus, the factum of *a + b - c* into *d*, is wrote *d x a + b - c*. Leibnitz, Wolfius, and others, distinguish the compound factors, by including them in a parenthesis thus *(a x b - c) d*.

÷ *by*. The sign of division; thus, *a ÷ b* denotes the quantity *a* to be divided by *b*. In algebra the quotient is often ex-

pressed like a fraction, thus $\frac{a}{b}$ denotes the quotient of *a* divided by *b*. Wolfius makes the sign of division two dots; thus, *12 : 4* denotes the quotient of 12 divided by 4 = 3. If either the divisor or divided, or both, be composed of several letters; for example, *a + b ÷ c*, instead of writing

the quotient like a fraction, $\frac{a+b}{c}$ Wolfius includes the compound quantities in a parenthesis, thus *(a+b) : c*.

⊖ *involution*. The character of involution.

√ *evolution*. The character of evolution, or the extracting of roots.

> or **⌋** are signs of a majority; thus, *a > b*, expresses that *a* is greater than *b*.

< or **⌈** are signs of minority; and when we would denote that *a* is less than *b*, we write *a < b*, or *a ⌈ b*.

≈ is the character of similitude used by Wolfius and Leibnitz, and others: it is used in other authors for the difference between the two quantities, while it is unknown which is the greater of the two.

: *so is*. The mark of geometrical proportion disjunct, and is usually placed between two pair of equal ratio, as *3 : 6 :: 4 : 8*, shews that 3 is to 6 as 4 is to 8.

∴ the mark of geometrical proportion continued, implies the ratio to be still carried on without interruption, as 2, 4, 8, 16, 32, 64 ∴ are in the same uninterrupted proportion.

J. IRVING

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Irrationality. The character of a surd root, and shews, according to the index of the power that is set over it, or after it, that the square, cube, or other root is extracted, or to be extracted: thus, $\sqrt[4]{16}$, or $\sqrt[3]{16}$, or $\sqrt{(2)} 16$, is the square root of 16. $\sqrt[3]{25}$, the cube root of 25, &c.

This character sometimes affects several quantities, distinguished by a line drawn over them thus, $\sqrt{a+b}$ denotes the square root of the sum of a and b . When any term or terms of an equation are wanting, they are generally supplied by one or more asterisks: thus in the equation.

$$y^2 + py + \frac{1}{2}p^2 + q = 0, \text{ the term } \pm$$

$-py$ vanishing, is marked with an asterisk, as $y^2 + \frac{1}{2}p^2 + q$.

CHARACTERS used in Astronomy.

Characters of the Planets.

♄ Saturn	♀ Venus
♃ Jupiter	☿ Mercury
♂ Mars	☾ Moon
☼ Sun	♁ Earth

Of the signs.

♈ Aries	♎ Libra
♉ Taurus	♏ Scorpio
♊ Gemini	♐ Sagittarius
♋ Cancer	♑ Capricornus
♌ Leo	♒ Aquarius
♍ Virgo	♓ Pisces

Of the aspects.

♌ or S. Conjunct.	Δ Trine
S S Semifexile	♁ Biquintile
* Sextile	V c Quincunx
Q Quintile	♁ Opposition
□ Quartile	♁ Dragon's head
Td Tredecile	♁ Dragon's tail

Of time.

A. M. *ante meridiem*, before the sun comes upon the meridian.

O. or N. noon.

P. M. *post meridiem*, when the sun is past the meridian.

CHARACTERS in Geometry and Trigonometry.

The character of parallelism	v equiangular, or similar
Δ triangle	≡ equilateral
□ square	< an angle
▭ rectangle	⊥ right angle
○ circle	⊥ perpendicular

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* denotes a degree; thus 45° implies, 45 degrees. ' a minute; thus 50', is 50 minutes. " " " denote seconds, thirds, and fourths: and the same characters are used where the progressions are by tens, as it is here by sixties.

CHARACTERS used in the Arithmetic of Infinities.

A dot over a letter is the character of an infinitesimal or fluxion; thus, $\dot{x}$, &c. express the fluxions or differentials of the variable x and y ; and two, three, or more dots denote second, third, or higher fluxions. Leibnitz, instead of a dot, prefixes the letter d to the variable quantity, in order to avoid the confusion of dots in the differences of differentials. See FLUXIONS and DIFFERENTIAL Calculus.

CHARACTERS in Grammar, Rhetoric, Poetry, &c.

{ parenthesis	^ caret and circumflex
] crochiet	" quotation
- hyphen	+ and * references
' apostrophe	§ section or division
emphatic or accent	¶ paragraph
breve	
~ dialysis	
F. R. S. fellow of the royal society.	
SS. T. D. doctor in divinity	
V. D. M. minister of the word of God	
LL. D. doctor of Laws.	
J. V. D. doctor of civil and canon law	
M. D. doctor in physic	
A. M. master of arts	
A. B. bachelor of arts	

See COMMA, COLON, SEMICOLON, &c.

CHARACTERS in Medicine and Pharmacy.

R. receipe	
ā ā, or ana, of each alike	
℔ a pound or pint.	
℥ an ounce	
ʒ a drachm	
ʒ a scruple	
gr. grains	
℥, half of any thing.	
cong. congius, a gallon	
coch. cochleare, a spoonful	
M. manipulus, a handful	
P. a pugil	
P. ℥. equal quantities	
S. A. according to art	
q. s. a sufficient quantity	
q. pl. as much as you please	
P. P. pulvis patrum, the jesuit's bark	

C H A

CHARACTERS used in music, and of musical notes, with their proportions, are as follow.

	character of a large	8
	a long	4
	a breve	
	a semibreve	1
	minim	1
	crochet	1
	quaver	1
	semiquaver	1-16th
	demisemiquaver	1-32d

character of a sharp note: this character at the beginning of a line, or space, denotes that all the notes in that line are to be taken a semitone higher, than in the natural series; and the same affects all the octaves above or below, though not marked: but when prefixed to any particular note it shews that note alone to be taken a semitone higher than it would be without such character.

or character of a flat note: this is the contrary to the other above, that is, a semitone lower.

character of a natural note: when in a line or series of artificial notes, marked at the beginning or , the natural note happens to be required, it is denoted by this character

character of the treble clef.

character of the mean clef.

: bass clef.

2-4ths, or 4-8ths, characters of common duple time, signifying the measure of two crotchets to be equal to two notes, of which four makes a semibreve.

characters that distinguish the movements of common time, the first implying slow, the second quick, and the third very quick.

1-half, 2-3ds, 3-4ths, 3-8ths, 3-16ths, characters of simple triple time, the measure of which is equal to three semibreves, or to three minims.

4-6ths, 6-8ths, or 6-16ths, characters of single triple time, where the measure is equal to six crotchets or six quavers.

9-4ths, or 9-8ths, or 9-16ths, or 9-32d, or 9-2d, characters of compound triple time.

4-12ths, 8-12ths, or 12-16ths, or 1-12th, or 2-12th, characters of that species of triple time, called the measure of twelve times. See TRIPLE.

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Numerical CHARACTERS, used to express numbers, are either letters or figures.

The Arabic character, called also the common one, because it is used almost throughout Europe in all sorts of calculations, consists of these ten digits, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0.

The Roman numeral character consists of seven majuscule letters of the Roman alphabet, viz. I, V, X, L, C, D, M.

The I denotes one, V five, X ten, L fifty, C a hundred, D five hundred, and M a thousand.

The I repeated twice makes two, II; thrice, three, III; four is expressed thus IV, as I before V or X takes an unit from the number expressed by these letters. To express six an I is added to a V, VI; for seven, two, VII, and for eight, three, VIII; nine is expressed by an I before X, thus IX.

The same remark may be made of the X before L or C, except that the diminution is by tens; XL denotes forty, XC ninety, and LX sixty. The C before D or M diminishes each by a hundred.

The number five hundred is sometimes expressed by an I before a C inverted; and instead of M, which signifies a thousand, an I is sometimes used between two Cs, the one direct, and the other inverted, thus CII. The addition of C and I before or after, raises CII by tens, thus CCII expresses ten thousand, CCCII a hundred thousand.

CHARACTER, in epic and dramatic poetry, what is peculiar in the manners of any person, and what distinguishes him from all others. The poetical character, says Mr. Bosu, is not properly any particular virtue or quality, but a composition of several which are mixed together, in a different degree, according to the necessity of the fable and the unity of the action; there must be one, however, to reign over all the rest, and this must be found, in some degree, in every part. This first quality, in Achilles, is wrath; in Ulysses, dissimulation; and in Aeneas, mildness; but as these characters cannot be alone, they must be accompanied with others to embellish them, as far as they are capable, either by hiding their defects, as in the anger of Achilles, which is palliated by extraordinary valour; or by making them center in some solid virtue, as in Ulysses, whose dissimulation makes a part of his prudence; and in Aeneas, whose

whose mildness is employed in a submission to the will of the gods. In the making of a fable, of which union, it is to be observed, all the poets have joined together such qualities as are by nature the most compatible; as valour with anger, piety with mildness, and prudence with dissimulation. The fable required prudence in Ulysses, and piety in Aeneas; in this, therefore, the poets were not left to their choice: but Homer might have made Achilles a coward without abating any thing from the justness of his fable: so that it was the necessity of adorning his character that obliged him to make him valiant; the character, then, of a hero in the epic poem, is compounded of three sorts of qualities; the first essential to the fable; the second, embellishments of the first; and valour, which sustains the other two, makes the third.

Unity of character is as necessary as the unity of the fable: for this purpose a person should be the same from the beginning to the end: not that he is always to betray the same sentiments, or one passion; but that he should never speak or act inconsistently with his fundamental character.

For instance, the weak may sometimes fall into a warmth, and the breast of the ever-passionate be calmer, a change which introduces in the drama a very affecting variety; but if the natural disposition of the former was to be represented as boisterous, and that of the latter mild and soft, that they would both act out of character, and so contradict their persons.

True characters are such as we truly see and really see in men, or may exist without any contradiction to nature; no man is a question, but there have been men as generous and as good as Aeneas, as passionate and as violent as Achilles, as prudent and wise as Ulysses, as impious and atheistical as Mezentius, and as amorous and passionate as Dido; all these characters, therefore, are true, and nothing but just imitations of nature: on the contrary, a character is false when an author so feigns it that we can see nothing like it in the order of nature wherein he designates it shall stand; these characters should be wholly excluded from a poem, because, transgressing the bounds of probability and reason, they meet with no belief from the readers: they are fictions of the poet's brain, not imitations of nature; and yet all poetry consists in an imitation of nature.

CHARACTERISTIC, a peculiar mark or character whereby a person or thing is distinguished from all others.

Grammarians use the term characteristic, in a more limited sense, for the principal letter of a verb, preserved through all its moods and tenses, derivatives, and compounds: such is the letter *w* in the word *drum*.

The characteristic letter is of most use in the formation of Greek verbs, as being always the same in the corresponding tenses of the same conjugation, that is, in those formed from the present, future, or pretérito. See **VERB**, **MOOD**, **TENSE**, &c.

CHARACTERISTIC of a *Lepanthum*, the same with its index or exponent.

CHARACTERISTIC of a *Curve*, in the higher geometry, a rectilinear right-angled triangle, whose hypothenuse makes a part of the curve not sensibly different from a right line.

It is so called because curve lines are used to be distinguished thereby.

CHARCOAL, a sort of fuel, made of wood charred or half burnt.

There are considerable differences in the coals of different vegetables, in regard to their habitude to fire: the coals of the blackberry-bearing alder, of the hazel, the willow, and the lime-tree, are said to answer best for the making of gunpowder, and other pyrotechnical compositions, perhaps from their being easily inflammable: for the reduction of metallic calces, those of the heavier woods, as the oak and the beech, are preferable, these seeming to contain a larger proportion of the phlogistic principle; and that, perhaps, in a more fixed state: considered as a common fuel, those of the heavy woods give the greatest heat, and require the most plentiful supply of air to keep them burning; those of the light woods preserve a glowing heat, without much draught of air, till the coals themselves are consumed; the bark commonly crackles and flies about in burning, whilst the coal of the wood itself very seldom does. Charcoal, in burning, is supposed to emit a peculiar vapour, which confined and accumulated in a close room, proves poisonous to animals: there are, indeed, too many examples of fatal consequences from the burning of charcoal in close places; not, however, from the charcoal giving out any pernicious matter, but from the quality of the air of the room being altered by the fire: all that has passed through burning fuel is no longer capable of supporting either fire or the life of animals.

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CHARDS of *Antichoke*, in gardening, the leaves of said antichoke plants, tied and wrapped up in straw all over, but the top, during the autumn and winter: this makes them grow white, and lose some of their bitterness.

CHARDS of *Beets*, white beets covered over with dry dung during the winter-season, when they produce large tops, with a downy cotton shoot, which is the true chard to be used in pottages, inter-mixes, &c.

CHARGE, in gunnery, the quantity of gun-powder and ball, wherewith a gun is loaded for execution. The common allowance for the charge of powder of a piece of ordnance is half the weight of the ball. In the British navy, the allowance for thirty-two pounders is but seven sixteenths of the weight of the bullet. But a late author is of opinion, that if the powder in all ship cannon whatever was reduced to one third of the weight of the ball, or even less, it would be of considerable advantage, not only by saving ammunition, but by keeping the guns cooler and quieter, and at the same time more effectually injuring the vessels of the enemy.

CHARGE, in heraldry, is applied to the figures represented on the escutcheon, by which the bearings are distinguished from one another; and it is to be observed, that too many charges are not so honourable as fewer.

Charges in the manege, are outward applications to the bodies of horses, &c. and are prepared divers ways, according to the nature of the disease.

CHARGE, or **OVERCHARGE**, in painting, an exaggerated representation of any person, wherein the likeness is preserved, but withal ridiculed: few painters have the genius to succeed in these charges. The method is, to pick out and heighten something whims in the face, whether by way of defect or redundancy; thus, if nature has given a man a nose a little larger than ordinary, the painter falls in with her, and makes the nose extravagantly long; and so in other cases.

CHARGE of *Lead*, denotes a quantity of thirty-six pigs.

CHARGED, in heraldry, a shield carrying some figure is said to be charged therewith; so also when one bearing, or charge, has another figure added upon it, it is properly said to be charged.

CHARGED CYLINDER, in the art of war, that part of the chase of a gun where the powder and ball are contained.

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CHARIOT, a half coach, having only a seat behind.

Triumphal CHARIOT, one of the principal ornaments of the Roman celebration of a victory. See *TRUUMPHUS*. The Roman triumphal chariot was generally made of ivory, round like a sower, or rather of a cylindrical figure; usually drawn by four white horses, but oftentimes by lions, elephants, tigers, bears, leopards, dogs, &c.

CHARITY, among divines, one of the three grand theological virtues, consisting in the love of God, and of our neighbour. Charity, among moralists, is used for the effect of a moral virtue, and consists in supplying the necessities of others, whether with money, counsel, assistance, or the like.

CHARITY-SCHOOLS, schools established by the voluntary contributions of the inhabitants of parishes for teaching poor children to read and write, and other necessary parts of education. In most charity-schools the children are likewise clothed and put out to trades, services, &c. on the same charitable foundation.

CHARLES I. king of Great Britain, was born at Dunfermling, in Scotland, the 19th of November, 1600. He succeeded his father James I. in 1625, and the very same year married Henrietta of France, the daughter of Henry IV. Two years after he sent assistance to the French Calvinists, to prevent the taking of Rochelle; but the English being defeated, and Rochelle taken, a treaty of peace was concluded between the two crowns. The king engaging in several arbitrary measures to obtain that money which was refused him by the parliament, they were greatly dissatisfied; and at length his majesty attempting to take several members out of the house of commons while they were censuring his conduct, they rose into an open rebellion, as the Scots had done some time before, which produced a bloody civil war, which lasted till this unhappy king was stripped of his dominions, and the Scots, with whom he had taken refuge, having delivered him up to the English, he was at last brought to his trial before a high court of justice, was found guilty, and was beheaded before the Banqueting-house at White-hall, on the 30th of January, 1648, in the forty-ninth year of his age, and the twenty-fifth of his reign.

CHARLES II. king of Great Britain, and the son of Charles the first, was born on the 29th of May, 1630. Being

informed while at the Hague of the death of his father, he went into Scotland, where he was proclaimed King of England, Scotland, and Ireland; but Cromwell, to whom the command of the army was then given, marched against him with the English forces, defeated him near Dunbar, and afterwards following him to Worcester, entirely routed his army. He, by means of several disguises, made his escape, and arrived at Rouen, where finding that the French had entered into a treaty with Cromwell, he retired to Cologne. The Spaniards then declared war against Cromwell, and at the same time allowed prince Charles a pension, who went into Flanders, and from thence retired to Holland, where he stayed till Cromwell's death, which happened on the third of September, 1658. In 1660, general Monk having rendered himself absolute master of the parliament, recalled the prince and his two brothers; on which Charles was crowned the following year, and in 1662 married to the infantia of Portugal. In 1665 war was declared against the Dutch and French, and on the third of June a great victory was obtained over the Dutch at sea, and the same year a most terrible pestilence broke out in London. In 1666 another victory was obtained over the Dutch at sea, soon after which sir Robert Holmes burnt one hundred and fifty sail of Dutch merchantmen. In 1667 the Dutch taking advantage of our being off our guard, entered Chatham river, and burnt several men of war. But king Charles, notwithstanding this piece of treachery, concluded the peace at Breda. This was however but of short continuance, for in the year 1672, king Charles joined with the French, who attacked the Dutch by land, while the English engaged their fleets at sea; but a peace was concluded two years after. King Charles died Feb. 16, 1685, in the fifty-fifth year of his age, and was buried in Henry the Seventh's chapel, in Westminster-abbey. He was succeeded by his brother James, duke of York.

CHARLES'S-WAIN, in astronomy, seven stars in the constellation called *Ursa major*, or the great bear. See *URSA*.

CHARLOCK, the English name of a plant called by botanists, *eripistrum*, or *erambe*. See *GRAMINAE*. Charlock is a very troublesome weed in corn-fields, where we find two species of it very common, viz. one with a yellow flower, and the other with a white one. To prevent its growth the farmers mix horse dung with

their cow dung used in manure, as the last is very apt to breed the charlock. When a field of barley is much infested with it, they mow it down in May, when in flower, taking care only to cut it so low as just to take off the tops of the leaves of the barley.

CHARM, a term derived from the Latin, *carmen*, a verse, and used to denote a magic power, or spell, by which, with the assistance of the devil, forcerers and witches were supposed to do wonderful things, far surpassing the power of nature. These things are now sufficiently exploded.

CHARNEL, or **CHARNEL-HOUSE**, a kind of portico, or gallery, usually in or near a church-yard, over which were anciently laid the bones of the dead, after the flesh was wholly consumed.

Charnel-houses are now usually adjoining to the church.

CHARON, in fabulous history, the son of Erebus and Nox, whose office was to ferry the souls of the deceased over the waters of Acheron, for which each was to pay a piece of money. For this reason the Pagans had a custom of putting a piece of money into the mouth of the deceased, that they might have something to pay Charon for their passage.

Charon is represented as a mean squalid old man, meanly dressed, with a bushy grey beard, and of a morose disposition.

CHARRE, or **GILT-CHARRE**, a truttaceous fish, called by many *carpio*, and reckoned by Artedii a species of salmon, less than a foot in length, with five rows of teeth in its palate.

Red CHARRE, a species of salmon, called by authors *umbra minor*; it is much of the same size with the former, with the belly-fin red, and the under-jaw a little longer than the upper one.

CHART, or **SEA-CHART**, an hydrographical map, or a projection of some parts of the earth's superficies in plano, for the use of navigators. Charts differ very considerably from geographical or land maps, which are of no use in navigation. Nor are sea-charts all of the same kind, some being what we call plane-charts, others mercator-charts, and others globular charts.

Plane CHART is a representation of some part of the superficies of the terraqueous globe, in which the meridians are supposed parallel to each other, the parallels of latitude at equal distances, and consequently the degrees of latitude and longitude

made every where equal to each other. See *PLANE Chart*.

Mercator's CHART is that where the meridians are straight lines, parallel to each other, and equidistant; the parallels are also straight lines, and parallel to each other; but the distance between them increases from the equinoctial towards either pole, in the ratio of the secant of the latitude to the radius.

Globular CHART, a meridional projection, wherein the distance of the eye from the plane of the meridian, upon which the projection is made, is supposed to be equal to the sine of the angle of 45° . This projection comes the nearest of all to the nature of the globe, because the meridians therein are placed at equal distances; the parallels also are nearly equidistant, and consequently the several parts of the earth have their proper proportion of magnitude, distance, and situation, nearly the same as on the globe itself. See *GLOBULAR Projection*.

Chorographic CHARTS, description of particular countries. See *CHOROGRAPHY*.

Heliographic CHARTS, descriptions of the body of the sun, and of the maculae or spots observed in it. See *HELIOGRAPHY*.

Hydrographic CHARTS, sheets of large paper, whereon several parts of the land and sea are described, with their respective coasts, harbours, sounds, flats, rocks, shelves, sands, &c. together with the longitude and latitude of each place, and the points of the compass. See *MERCATOR'S Chart*.

Selenographic CHARTS, particular descriptions of the spots, appearances, and maculae of the moon. See *SELENOGRAPHY*.

Topographic CHARTS, draughts of some small parts of the earth only, or of some particular places, without regard to its relative situation.

CHARTA-MAGNA, an ancient instrument, containing several privileges and liberties granted to the church and state by Edward the Confessor, together with others relating to the feudal laws of William the Conqueror, granted by Henry I. all confirmed by the succeeding princes. See *MAGNA-CHARTA*.

CHARTER, in law, a written instrument or evidence of things acted between one person and another. Charters of private persons are deeds and instruments for the conveyance of lands, &c. Here the

purchaser of land shall have all the charters and deeds, as incident to the same, and for the maintenance of his title. But this is understood where the feoffee is not bound to a general warranty of the land.

CHARTER of the King, is where the king makes a grant to any person or body politic, as a charter of exemption, of privilege, pardon, &c.

CHARTER-LAND, such as a person holds by charter; that is, by evidence in writing, otherwise termed freehold. See *FREEHOLD*.

CHARTY-PARTY, in commerce, a deed of writing indented, made between merchants and sea-faring men, concerning their merchandize and maritime affairs. A charter-party of affreightment, settles the agreement in relation to the freight of a ship and cargo, between the merchant and commander or master of the vessel. It binds the master to deliver the cargo in good condition at the place of discharge, &c.

In those charter-parties, if the dangers of the sea are excepted, it has been judged that such exception extends as well to any danger upon the sea from pirates or men of war, as to common dangers, by shipwreck, tempests, &c.

CHARYBDIS, a whirl-pool in the strait of Messina, between Italy and Sicily, much celebrated in the writings of ancient poets.

CHASE, a great quantity of ground lying open and privileged for wild beasts and wild fowl. A chase differs from a forest, inasmuch as it may be in the hands of a subject, which a forest in its proper nature cannot; and from a park, as it is not inclosed, and hath more officers. A chase is not endowed like a forest with so many liberties, as the courts of attachment, swainmoe, and justice-seat; and cannot lawfully be made, without license from the king under the broad-seal.

CHASING of Gold, Silver, &c. See *ENCHASING*.

CHASTE-TREE, the vitex. See *VITEX*.

CHAUCER, (GEOFFREY) the most eminent of the English poets of his time, was born in 1328, and educated at Cambridge, from whence he removed, to complete his studies at Oxford. He afterwards travelled, and at his return entered himself in the Inner Temple, where he studied the municipal laws of England. Being taken notice of at court, he became page to king Edward III. gentleman of

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the privy-council, and afterwards shield-bearer to the king, who also granted him several other favours, by which means he became exceeding rich, having almost one thousand pounds per annum, a vast estate for those times. He sided with the duke of Lancaster, the chief instrument of his rise, and espoused the party of Wickliffe, when some commotions being raised in the city of London, he was obliged to fly to Hainault, whence his necessities forced him to return to England, where he was seized by the king's order, and imprisoned: but at last he made a frank confession of the whole affair, which procured him his pardon. He did not for some time recover the shock which this gave him; and his circumstances being reduced to the lowest degree of poverty, and his interest at court ruined, he retired to Woodstock, to enjoy the calm pleasures of a studious safety; but the duke of Lancaster at last surmounting his troubles, and marrying Chaucer's wife's sister, our poet's son became allied to most of the nobility, and to several of the kings of England, for he had some grants conferred upon him by the king, but was deprived of them again at the Revolution in favour of Henry IV. son of the duke of Lancaster; but while he was endeavouring to recover fresh grants, he died, on the 25th of October, 1400. The most admired of his poems are, his Knight's Tale, and his Canterbury Tales.

CHECK, or **CHECK-ROLL**, a roll or book, wherein is contained the names of such persons as are attendants and in pay to the king, or other great personages, as the household servants.

Clerk of the CHECK, in the king's household, has the check and controulment of the yeomen of the guard, and all the officers belonging to the royal family, allowing their absence or defects in attendance, or diminishing their wages for the same, &c. He also takes the view of those that are to watch in the court, and has the setting of the watch, &c.

Clerk of the CHECK, in the king's navy, the name of an officer invested with the like power at the several dock-yards.

CHECKY, in heraldry, is when the shield, or a part, as a bordure, &c. is chequered, or divided into chequers or squares, in the manner of a chess-board. This is one of the most noble and ancient figures used in armory, and ought to be given to none but great warriors, in token of their bravery; for the chess-board represents a field of battle, and the pawns of men,

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placed on both sides, represent the soldiers of the two armies, which move, attack, advance, or retire, according to the will of the two gamesters, who are the generals.

CHEEK, in anatomy, that part of the face situated below the eyes, on each side. Wounds of the cheeks, if small, may be cured by the dry suture; but if large, the bloody one must be used. See **SUTURE**.

CHEESE, *Caseus*, a sort of food, prepared of curdled milk, purged from the serum or whey, and afterwards dried for use. Physicians condemn the too free use of cheese, as it loads the stomach when new, and heats and inflames when old. Every country has its place noted for this commodity. Thus Cheshire and Gloucestershire cheese are famous in England; and the Parmesan cheese is in no less repute abroad, especially in France. This sort of cheese is entirely made of sweet cow's milk: but at Rochfort, in Languedoc, they make cheese of ewe's milk; and in other places, it is usual to add goat or ewe's milk, in a certain proportion, to that of cow's.

There is likewise a kind of medicated cheese, made by intimately mixing the expressed juice of certain herbs, as sage, baum, mint, &c. with the churd, before it is fashioned into a cheese.

CHELIDONIUM *Majus*, celandine, in botany, a perennial plant, which grows wild in hedges and shady waste places, and flowers in May. It is a very acrid plant, and stands recommended as a powerful aperient and attendant, in obstinate jaundices, when not accompanied with inflammatory symptoms, in cachexies, chloroses, dropsies, and other diseases.

CHELIDONIUM *Minus*, pilewort, in botany, a small perennial plant, which grows wild in hedges and moist meadows, and flowers in April. The leaves of pilewort are ranked among the antiscorbutics, but do not promise to be of much virtue. The roots are celebrated as a specific against the piles: they have been sometimes given inwardly, but chiefly applied externally, in the form of a cataplasm, lotion, or unguent.

CHEMIN DES RONDES, in fortification, a space between the rampart and low parapet under it, for the rounds to go about the same.

CHEMISE, in fortification, the wally with which a bastion, or any other bulwark of earth, is lined for its greater support and strength: or it is the solid

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city of the wall from the talos to the stone row.

FIRE CHEMISE, a piece of linen cloth, steeped in a composition of oil of petrol, camphor, and other combustible matters, used at sea, to set fire to an enemy's vessels.

CHEMICAL Laboratory, or *Elaboratory*, the place where chemical processes are performed.

CHEMISTRY, an art that teaches us how to perform certain physical operations, by which bodies that are discernable by the senses, or that may be rendered so, and that are capable of being contained in vessels, may, by suitable instruments, be so changed, that particular determined effects may be thence produced, and the causes of these effects understood by the effects themselves, to the manifold improvement of various arts.

If we endeavour to find the origin of this art, we must look back into the antediluvian world, where it was practised, as some think, by Cham, the son of Noah; but the invention is more commonly ascribed to Tubal-Cain, who first prepared brass and iron for the use of man, which he could not have done without a competent knowledge of chemistry. At the declension of the Eastern empire, chemistry shared the common fate of the other arts, and lay buried and neglected till the time of our friar Bacon, by whom it was in a great measure retrieved. He was followed by Raymond Lully, Basil Valentine, Paracelsus, Van Helmont, and others, who spread the art in Spain, Italy, and Germany; and the two last especially carried it to such a length, as to render medicine almost wholly chemical. Limery a Frenchman, Homberg an East-Indian, and our ingenious countryman Mr. Boyle, dispersed the darkness of the art, reducing it to simple and true ideas, and abolishing those useless and impracticable circumstances, with which some of their predecessors had designedly clogged its operations. But of all the moderns none have made greater improvements in chemistry, or more judiciously and beneficially introduced it into medicine, than the late celebrated Boerhaave, who is also the fullest and best writer on the subject, having given us the history, theory, and practice of this noble art in an orderly and scientific manner.

CHERRY-TREE, *Cerasus*, in botany. See *CERASUS*.

CHETT, among miners, a kind of stony stone, found in thin strata in quarries of lime-stone.

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CHERUB, or **CHERUBIN**, a celestial spirit, which hierarchy is placed next to the seraphim. See *HIERARCHA*.

The several descriptions which the Scripture gives us the cherubims, differ from one another: but all agree in representing a figure composed of various creatures, as a man, an ox, an eagle, and a lion.

CHERVIL, *Cherophyllum*, in botany. See *CHEROPHYLLIUM*.

* **CHESHIRE**, a county of England, is bounded on the north by Lancashire, from which it is parted by the river Mersey; on the north-east corner by Yorkshire, on the east by Staffordshire and Derbyshire, on the south by Shropshire and the river Dee, on the west by Denbighshire and Flintshire, and on the north-west by St. George's Channel, where it forms a kind of peninsula. It is forty-five miles in length, and twenty-five in breadth, contain eleven market towns, besides Chester; one hundred and twenty-five parishes and villages, whereof eighty-seven only have churches; the rest are chapels. The market-towns are Nantwich, Middlewich, Northwich, Macclesfield, Congleton, Frodsham, Stockport, Sandbach, Altringham, Malpas, and Knutsford. It is a county palatine, and still enjoys some of its ancient privileges, it having the palatine courts for the administration of justice kept at Chester. It sends four members to parliament, two for the county, and two for the city. The rivers are the Dee, which rising from two mountains in North Wales, first runs east, and then north to Chester, and from thence proceeds to the sea. The Weaver rises in Shropshire, and falls in the estuary of Mersey. The Mersey is the northern boundary of the county, and falls into the sea. The Dee abounds with salmon and trout. The air of this county is healthy, and the country level, except on the borders of Staffordshire and Derbyshire, where it is hilly. The soil is generally fruitful, and the farmers keep it in heart by manuring it with marl, of which they have two sorts, white and red. The vast quantity of cheese made in this county, is a proof that there is a great deal of pasture land, wherein they keep their cows. There are likewise meres, lakes, and pools, in which there are carp, tench, bream, eels, &c.

The chief commodities are cheese, salt, and mill-stones. The salt is made from the water of salt springs, at the Witches.

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CHESTNUT-TREE. See **CASTANEA**.

CHEST, in commerce, a kind of measure, containing an uncertain quantity of several commodities.

A chest of sugar, v. g. contains from ten to fifteen hundred weight; a chest of glass, from two hundred to three hundred feet; a chest of Castile soap, from two and a half to three hundred weight; of indigo, from one and an half to two hundred weight, five score and twelve pounds to the hundred.

CHEST, in anatomy, the breast, or that part of the body which contains the heart and lungs. See **BREAST**.

* **CHESTER**, the capital city of Cheshire, is of a quadrangular form, and is surrounded with a wall, with four gates towards the four cardinal points. It is about two miles in compass, and contains nine parish churches, besides the cathedral. The castle stands on the south side of the city, and is a noble and stately building, having a tower bearing the name of Julius Cæsar, and a hall where the palatine court and assizes are kept, twice a year, with commodious rooms for the reception and lodging of the judges of assize; as also a convenient hall for the prince's exchequer court. The principal streets are adorned with piazzas, or rows, as the inhabitants call them, under which there are shops, and through which one may walk dry in rainy weather. The city is governed by a mayor, two sheriffs, twenty-four aldermen, a town-clerk, &c. and sends two members to parliament. It has two markets, on Wednesdays and Saturdays, and three fairs, one on the last Thursday in February, for cattle; and the other two on July 5, and October 10, for Irish linen cloth, hardware, drapery goods, Manchester manufactures, hops, and cattle. This city and Holyhead are the two great thoroughfares for Ireland. It is one hundred and eighty-two miles north-west from London. Long. 3. 0. W. Lat. 53. 11. N.

CHEVALIER, in a general sense, signifies a knight, or horseman: but

CHEVALIER, in heraldry, signifies any cavalier, or horseman, armed at all points.

CHEVAUX DE FRISE, in fortification, a large joist or piece of timber, about a foot in diameter, and ten or twelve feet in length; into the sides whereof are driven a great number of wooden pins, about six foot long, armed with iron points, and crossing one another. See plate XII.

fig. 5. Shows a piece of a Chevaux de Frise.

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The chief use of the *chevaux de frise*, is to stop up breaches, or to secure the avenues of a camp, from the incursions both of horse and foot. It is sometimes also mounted on wheels, with artificial fires, to roll down in an assault.

CHEVRETTE, in the art of war, an engine for raising guns or mortars into their carriages.

CHEVRON, or **CHEVERON**, in heraldry, one of the honourable ordinaries of a shield, representing two rafters on an house, joined together as they ought to stand: it was anciently the form of the priestesses' head attire: some say it is a symbol of protection; others, of constancy; others, that it represents knights' spears, &c.

CHIAN EARTH, in pharmacy, one of the medicinal earths of the ancients, of which nothing more than the name has been known for many ages in the shops.

CHICANE, or **CHICANRY**, in law, an abuse of judiciary proceedings, tending to delay the cause, to puzzle the judge, or impose upon the parties.

CHICANE, in the schools, sophisms, distinctions, and subtleties, which protract disputes and obscure the truth.

CHICHES, or **CAICH-PEASE**. See **CICER**.

* **CHICHESTER**, the capital city of Sussex, is surrounded with a wall, with four gates, answering to the four cardinal points. The space between the west and south gates is taken up with the cathedral church and the bishop's palace. The church itself is not large, but neat, and has a high spire of good workmanship. It has five parish churches, and is seated on the little river Lavant, which washes it on all sides except the north. This city had a castle, which was afterwards converted into a monastery, which is now demolished. It is governed by a mayor, recorder, fourteen aldermen, and a common council, and four justices of the peace chosen out of the aldermen. It has two weekly markets, on Wednesdays and Saturdays; and every other Wednesday there is a market for cattle. It has five fairs, those on May 3, Whit-Monday, and August 5, are for horses and horned cattle; that on October 10, for horned cattle; and that on October 20, for horses and horned cattle. It sends two members to parliament, and is famous for lobsters. It is fifty-three miles south-west of London; and eighty-one south-

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by-east of Oxford. Long. o. 59. W. Lat. 50. 50. N.

CHICK, or **CHICKEN**, in zoology, the young of the gallinaceous order of birds, especially the common hen.

Chickens, for two days after hatching, require no meat; but then it is proper to give them, for the first time, small oat-meal, some dry and some steeped in milk, or else fine white-bread crumbs; and after they have got strength, curds, cheese paring, &c. It is also very wholesome to chop green chives among their meat, which will preserve them from the rye, and other diseases in the head; neither must they at any time be suffered to want clean water, since puddle-water is apt to breed the pip.

CHICK-WEED, *Alfaca*, in botany. See **ALSINE**.

CHIEF, the head or principal part of a thing or person. Thus we say, the chief of a party, the chief of a family, &c.

CHIEF, in heraldry, that which takes up all the upper-part of the escutcheon from side to side, and represents a man's head.

In **CHIEF**, imports something borne in the chief part or top of the escutcheon.

CHILBLAINS, in medicine, the same with what is otherwise called pernioes. See **PERIÑO**.

CHILD, a term of relation to a pattern.

Dr. Harris, in a treatise of the acute diseases of children, takes them all to arise from the humours of the primæ viæ growing sour and degenerating into acidities, which is confirmed from their sour belching and dejections. Hence all that is required to cure them is to combat this acidity, which is to be effected two ways; by disposing it to be evacuating, and by actual evacuation by rhubarb, and other gentle purgatives. In the first case, no sudorifics or cordials are to be used, but in lieu of them, crabs-eyes and claws, oyster-shells, egg-shells, chalk, coral, &c. but above all these, he prefers old shells that have lain long on the sea shore exposed to the heat of the sun. Children are very obnoxious to the apothæ, or thrush, scabby eruptions, difficult dentition, epilepsy, worms, and rickets; for the cure of which, see each of these under its proper head. See also the articles, **INFANT**, **NURSING**, **WEANING**, &c.

CHILDREMAS-DAY, or **INNOCENT'S-DAY**, an anniversary held by

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the church, on the 28th of December, in commemoration of the children at Bethlehem, massacred by order of Herod.

* **CHIMERA**, or **CHIMÆRA**, a fabulous monster which the poets feign to have the head of a lion, the body of a goat, and the tail of a dragon; and add, that this odd beast was killed by Bellerophon. The foundation of the fable was, that in Lycia there was a burning mountain, or volcano, of this name; that the top of this mountain was seldom without lions, nor the middle, which had very good grass, without goats; that serpents bred at the bottom, which was marshy; and that Bellerophon rendered the mountain habitable. By a chimera, among the philosophers, is understood a mere creature of the imagination, composed of such contradictions and absurdities as cannot possibly any where exist but in thought.

CHIMES of a *Clock*, a kind of periodical music, produced at equal intervals of time, by means of a particular apparatus added to a clock.

CHIMNEY, in architecture, a part of a house, where the fire is made, having a funnel to carry away the smoke.

The proportion for CHIMNIES. Wolfius directs that the breadth of the aperture at the bottom be to the height as 3 to 2, and to the depth as 4 to 2. In small apartments the breadth is 3 feet, in bed-chambers 4, in larger apartments 5, in small banquetting rooms 5 1-half, in larger 6; but the height should never exceed 2 1-half, lest there should be too much room for air and wind, and the smoke be driven into the room: nor must the height be too little, lest the smoke miss its way and be choaked at first setting out. The same author advises to have an aperture through which the external air may, on occasion, be let into the funnel, to drive up the smoke, which the internal air would otherwise be unable to do.

Some make the funnel twisted, to prevent the smoke's descending too easily; but the better expedient is, to make the funnel narrower at bottom than at top, the fire impelling it up more easily, when contracted at the bottom; and in mounting it finds more space to disengage itself, and therefore will have less occasion to return into the room.

To prevent smoking chimnies, Mr. Lucas advises to leave two holes, or make two pipes in the chimnies, one over the other on each side, one sloping upwards, the other downwards; through these holes or pipes

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pipes, says he, the smoke will easily pass out of any funnel, which way soever the wind blows.

CHIMNEY-MONEY, or HEARTH-MONEY, a tax imposed by statute 24 Car. II. expressing that every fire-hearth and stove of every dwelling or other House within England and Wales, except such as pay not to church and poor, shall be chargeable with two shillings per annum, payable at Michaelmas and Lady-Day, to the king and his heirs. This tax being much complained of, as burdensome to the people, has been abolished, and instead of it the window-tax was granted.

CHIMNEY-PIECE, a composition of certain mouldings of wood or stone, standing on the fore-side of the jambs, and coming over the mantle-tree.

CHINA, including Chinese Tartary, a large empire, situated between 95° and 135° east longitude, and between 21° and 55° north latitude, being accounted two thousand miles in length, and one thousand five hundred in breadth; it is bounded by Russian Tartary on the north, by the Pacific ocean on the east and south, and by Tonquin, Tibet, and the territories of Russia on the west. It is usually divided into sixteen provinces there are computed to be one hundred and fifty-five capital cities, one thousand three hundred and twelve of the second rank, two thousand three hundred and fifty-seven fortified towns, and upwards of ten millions of families, which may amount to about fifty millions of people.

The principal commodities of this country are silk, tea, china-ware, japan-ware, and gold-dust; of all which the maritime states of Europe import great quantities, sending them silver in return.

CHINA-ROOT, in the materia medica, a drug, of which there are two kinds, oriental and occidental. The two plants differ little or nothing in the leaves, flowers, or seeds, but considerably in the root, and remarkably in the time of flowering; the Chinese blowing only in June and July, whilst the American produces flowers successively almost all the year.

Decoctions of this root drank freely, are said to promote perspiration and urine, and have been greatly recommended in the venereal disease: they do not appear however, to have any considerable virtue.

CHINA-WARE, or *Porcelain*, a kind of ware well known in most parts of the world.

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The qualities of China ware, when perfectly good, are, to be very white and tenacious, so as not only to bear violence without breaking, and strike fire with the steel as flint; but to suffer boiling water to be poured on it, while it is itself in a cold state, without being broken or cracked: to have a semi-transparent appearance; to break without shewing any grain in the divided parts, but seeming to have in them the even texture of glass; to shine on the exterior surface, as if a bright polish had been given to it: to be completely fit, while the composition is in the state of a moist paste, before it be dried or baked, to be modelled or cast with the greatest nicety and minuteness, retaining the figure, though wrought into the most thin and slender parts; to dry afterwards without warping; and to undergo at last the baking or burning, without any separation of the parts or flaking. If the composition, or the ware formed of it, be deficient in any of these particulars, they are so far faulty: and by examining any pieces of China with regard to those particulars, which relate to the finished ware, the comparative or absolute goodness may be easily distinguished.

The baking or burning China ware is performed much in the same manner, as is practised by the potters for earthenware; except that it is done with more care; and that some expedients are used for defending the pieces from the injury of the smoke or dust of the furnace, which would deprave the colour, or infect the surface with specks.

The glazing the ware of this kind is a very important part of the manufacture of it; and has been generally found the most difficult to be performed. It is done by spreading some soft glass powdered, or some fluxing composition, (either mixed with part of the matter, of which the ware itself is formed, or in some cases without) on the surface of the pieces; and melting it there, so as when cold to make an entire covering with the smoothness and shining appearance of glass. As the composition of the glazing has been generally kept a secret by those who have the direction, almost every different manufactory have employed one peculiar to themselves; and few have succeeded in forming such as will well answer the end; as may be seen by examining the ware produced, even by the naked eye, but more distinctly with the assistance of a glass that magnifies largely; through which the surface

face will appear covered with, as it were, a net-work of an infinite number of cracks, (some of them frequently not small) that not only impair the polish, but give moreover a cast of greynefs to the colour.

Composition for CHINA-WARE. The composition of the eastern or proper China-ware is from two earths; one of which is vitrescent, and is called petunse; the other a refractory, or apyrous earth, and called kaolin.

Whether the earth called petunse is formed of the spar of lead, (as it is improperly called) used in the Dreiden manufactory, or whether of flints, or some species of sand, (for experience has shewn they will all answer the end, when they have no tinging matter in them, and will calcine to whiteness) is not evident from any information hitherto brought to this part of the world. But the description given of it is, that it is a very hard whitish stone, or of a grey inclining to the green.

The following composition will produce wares which will have the property of the true china.

"Take of the best white sand, or calcined flints finely powdered, twenty pounds, add to it of very white pearl-ashes five pounds, of bones calcined to perfect whiteness two pounds; temper the whole with gum-water, formed by dissolving the gums arabic or senegal in water.

This requires a considerable force and continuance of heat to bring it to perfection; but will be very white and good when it is properly treated. Where mica can be obtained, it is preferable to the calcined bones; and as it will form a paste of kindly texture for working, a weaker gum-water will serve; the necessity of using which at all, in this kind of compositions, is occasioned only by the want of proper cohesion and tenacity in the paste, which such mixtures make.

"Take of the best white sand, or calcined flints finely powdered, twenty pounds; of very white tobacco-pipe clay, or the Cornish soap rock clay washed over, five pounds; and of the whitest pearl-ashes, four pounds: temper them with a weak gum-water." Or,

"Take of the whitest sand, or calcined flints finely powdered, twenty pounds; of flint, or any other colourless glass, powdered also, ten pounds; and of mica, or calcined bones, two pounds: temper them with gum-water sufficiently strong, to give them a due cohesion."

There have been several similar compositions used for the imitation of China-

ware in the works set on foot in different parts of Europe. The works at Dreiden, and St. Vincennes in France may, be esteemed the only manufactories in Europe, advanced as yet to any degree of perfection; though there are no particular advantages in the situation of either of them, that give them any claim to the monopolizing this art: and we may, therefore, hope to see ourselves in time as much masters of this as of all the other manufactures duly cultivated and encouraged with us.

Manner of Formation of Vessels, Figures, Flowers, or other Pieces of CHINA-WARE. The various kinds of pieces of China-ware are formed by three methods, turning, casting, and modelling: the particular manner of doing which being the same in this case as in others, there will be little occasion to be explicit with regard to it. Larger vessels are generally turned in the same manner as is practised by the potters for stone or earthen ware: but where they are intended to be of very nice and accurate figure, after they have the general form given to them, they are finished by putting them into proper moulds.

Figures, as also pieces, or ornaments of pieces, of the nature of bas-relief, are commonly cast in moulds, which is done in the same way as plaster of Paris is treated for which directions will be found under the article CASTING. But some detached parts of ornaments, where no great precision of form is required, may be best modelled or worked by the hand.

Flowers, and other such loose designs, where latitude may be given to the fancy, are also most commodiously modelled or wrought with the hand, with the help of a small stick flattened at the point, a pair of pliers, and a wet sponge.

Where the parts of the pieces are very slender and thin, as particularly in the case of flowers, if the paste be not of itself of a very tenacious consistence, it should always be brought to a proper state of cohesion, by tempering it with gum-water: for the want of knowing which expedient, we have seen very coarse work done with great labour, and subject to frequent miscarriages, where the whole difficulty might have been easily surmounted by this means.

As to the baking, glazing, painting, and gilding of china-ware, it would be but to little purpose, to be particular here, or to add any thing to what hath been already observed on that head, as those who want to be thoroughly acquainted therewith, must

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have recourse to other methods, and fuller accounts than this work can admit of.

CHIN-COUGH, a convulsive kind of cough, which children are subject to, proceeding from a tough, viscid, and acid matter, lodged in the coats of the stomach, which when they vomit, they are easy for a time. Sometimes this disorder proceeds from a more dangerous cause, which is a certain salt communicated to tender bodies by means of the air, which coagulates the lymph, and, which growing sharp and stagnating, affects the larynx. In the cure of this cough, particular care should be had to the stomach; and without a vomit the cure can hardly be effected. *Spermaceti* in broth is of excellent use: but by bleedings and repeated purges this cough may be cured, without other means: yet the milder cathartics ought here to take place. Drinks and liquid aliments should also be taken in less quantity than usual.

CHINESE, belonging to the empire of China, or its inhabitants.

CHINESE Philosophy. Though the Chinese are universally allowed to have surpassed all other nations of India, in their antiquity, learning, politeness, the improvement of the sciences, a taste for philosophy, and their political principles: yet it is certain, notwithstanding their extravagant pretensions, vaunts, and self-conceit, that their advances in learning and polite arts and sciences were, upon the whole, when the missionaries first visited that empire, not only greatly inferior to those of the politer modern christian nations of Europe, but even to many of the ancient pagan nations, particularly the Greeks and Romans; nay even, at this day, neither their knowledge, nor manners, are comparable to those of the Europeans, the former, in general, being very superficial, and the latter extremely corrupt; for if we may judge of the rest of the Chinese by those of Canton, they are much addicted to unnatural vices, to dissimulation, treachery, and hypocrisy, and to cheating, and over-reaching, in consequence of their covetousness; but in speaking of their manners, it ought always to be considered, that they are still Pagans and idolaters, the sect *Ju-kiao* dividing at present the whole empire with the sects *Poe-kiao* and *Lao-kiao*, which are in truth no other than three different combinations of superstition, idolatry, polytheism, and atheism.

The singular esteem with which they honoured the first Europeans who travelled

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into China, give us no very high idea of their skill in mechanics, astronomy, and other parts of the mathematics. These Europeans were not men of any distinguished merit, but such whom zeal carried thither, to propagate the Christian religion at the hazard of their lives, in unknown regions, which indeed beset some of their successors. They were well received by the Chinese; superstition, apt to take offence and be alarmed, gave them no opposition; they opened schools, had many disciples, and their learning was admired. The emperor *Cham-hy* about the end of the last century admitted them at court, learned our philosophy and sciences of them, studied mathematics, anatomy, astronomy, mechanics, &c. but his son *Yong-Tching* banished all the European virtuosi to Canton and Macao, except those that resided in Peking, who were suffered to continue in that city. *Kien-Long*, the son of *Yong-Tching*, shewed a little more indulgence to the learned of Europe; but forbade them to preach the Christian religion; and even persecuted his soldiers who had embraced it; though at the same time he permitted the Jesuits to continue their instructions at Peking.

CHIO-PEAR, the name of a species of pear, of a yellowish colour, and streaked with red.

CHIONANTHUS, snow-drop-tree, in botany, a genus of plants.

CHIRAGRA, in medicine, a term used to denote the gout in the hand or wrist. See *Gout*.

CHIROMANCY, a species of divination, drawn from the different lines of a person's hand; by which means, it is pretended, the inclinations may be discovered.

CHIRON, in fabulous history, a centaur, the son of *Saturn* and *Phillyris*, who lived in the mountains, and delighted in hunting; where obtaining the knowledge of the virtues of plants, he became one of the greatest physicians of his time. He taught this science to *Esculapius*, and afterwards became governor to *Achilles*, whom he fed with the marrow of lions and wild boars, in order to render him strong and courageous. But being wounded by *Hercules* with an arrow, which he dropt accidentally upon his foot, he begged of the gods to put an end to his life, on which *Jupiter* placed him in the heavens, where he forms one of the signs of the zodiac, under the name of *Sagittarius*.

CHIRURGERY, or **SURGERY**, that part of medicine which is employed in manual

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manual operations. **Chirurgery** is undoubtedly very ancient; but its inventor is very uncertain. In the days of Hippocrates, surgery was so connected with medicine, that the former was scarce distinguished from the latter by any peculiar and discriminating name: and that Hippocrates himself assisted the sick by manual operation, is a fact which cannot be called in question. During these last fifty years, surgery has been cultivated with very great success. M. le Dran has furnished us with instructions which will inform the most skillful practitioners. M. de la Faye, the ingenious commentator on Dionis, has likewise given us, in his notes, not only what his own experience and reflections have suggested, but also, as he says, the opinions and observations of the greatest surgeons at Paris; and, indeed, the frequent mention he makes of Mess. Morand, Petit, de la Peyronie, and others, are sufficient proofs that his comments are an exact representation of the present state of surgery in France. Heister's surgery is in every person's hands; and the character of Heister is so well established, that any account of that work is needless. Nor need we mention the treatise of surgery, and critical enquiry, of the ingenious Mr. Sharpe, since the name of the author is abundantly sufficient. Mr. Pott is also an honour to his country and profession.

CHISLEY-LAND, in agriculture, a soil of a middle nature, between sandy and clayey land, with a large admixture of pebbles.

CHISSEL, an instrument used in carpentry, masonry, joinery, sculpture, &c. and distinguished according to the breadth of the blade into half-inch chisels, quarter-inch chisels, &c. They have also different names according to the different to which they are applied.

CHIVALRY, in law, a tenure of service, whereby the tenant is bound to perform some noble or military office to his lord; and is either regal, when held only of the king; or common, such as may be held of a common person as well as the king: the former is properly called *feudum*, and the latter *eccuagium*. See **SERJEANTRY** and **ESCUAGE**.

A statute of Charles II. abolishes all tenures by chivalry, in capite, &c. and ordains that all tenures shall be construed to be free and common socage.

CHIVES, among gardeners, the same with the antheræ or apices. See **ANTHERÆ**.

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CHIVES is also the English name of a very small species of onion. See **ONION**.

CHLOROSIS, in medicine, a disease usually called the green sickness, incident to girls, maids, widows, and even wives whose husbands are deficient. Various are the symptoms of this disorder, as a feverish habit of body, vomiting, difficulty of breathing, and longing for unnatural foods. As to the cure, Astruc recommends borax, mineral-waters, electuaries made of preparations of steel, the martial flowers, &c. asafœtida, aloes and myrrh; emollient baths, frequent evacuations, and exercise; but above all, matrimony.

CHOCOLATE, a kind of paste, or cake, prepared of certain drugs, the basis of which is the cacao-nut.

The Indians, in their first making of chocolate, used to roast the cacao in earthen pots, and having afterwards cleared it of the husks, and bruised it between two stones, they make it into cakes with their hands. The Spaniards improved this method: when the cacao is properly roasted, and well cleansed, they pound it in an iron mortar, to reduce it into a coarse mass, which they afterwards grind, or levigate, on a stone, under which a charcoal fire is kept, till it be of the utmost fineness: when the paste is sufficiently ground, it is put quite hot into tin moulds, in which it congeals in a very short time. The form of these moulds is arbitrary; the parallelogramic ones, holding about a quarter of a pound, are the most proper, because the bigger the cakes are, the longer they will keep. Observe that these cakes are very liable to take any good or bad scent, and therefore they must be carefully wrapt up in paper, and kept in a dry place. Complaints are made, that the Spaniards mix with the cacao-nuts too great a quantity of cloves and cinnamon; besides other drugs without number, as musk, ambergris, &c. The grocers of Paris use few or none of these ingredients; they only choose the best nuts, which are called Caracca, from the place where they are produced, and with these they mix a very small quantity of cinnamon, the finest vanilla, and the finest sugar, but very seldom any cloves. Among us in England, the chocolate is made of the simple cacao, excepting that sometimes sugar and sometimes vanilla is added.

CHOIR, that part of the church where choiristers sing divine service: it is separated from the chancel, where the communion is celebrated; and also from

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the nave of the church, where the people are placed : the patron is said to be obliged to repair the choir of the church.

CHOIR, in nunneries, a large hall adjoining to the body of the church, separated by a grate, where the nuns sing the office.

CHOLAGOGUES, medicines which purge the bile.

Of this kind are manna, cassia, roses, sena, rhubarb, aloes, jalap, scammony, &c. There is some reason to think that antimonial medicines act more powerfully on the bile than any other remedies.

CHOLER, or BILE. See **BILE**.

CHOLERA-MORBUS, in medicine, the same with bilious fever. See **BILIOUS**.

CHOMELIA, in botany, a genus of plants.

CHONDRILLA, in botany, a genus of plants.

CHONDROGLOSSUM, in anatomy, the name of a pair of muscles arising from the cartilaginous process of the os hyoides, and meeting in the base of the tongue, where they are inserted : this pair is not found in all subjects.

CHONDROPTERYGII, in ichthyology, one of the five orders or subdivisions of fishes, the characters of which are these : the rays of the fins are cartilaginous, differing in little from the membrane that constitutes the fin ; they have likewise cartilages instead of bones ; and the mouth is for the most part situated in the lower part of the body.

CHORD, in geometry, a right-line connecting the extremities of any arch of a circle.

Line of CHORDS, the chords of a circle projected on a right-line. See *Plane Scale*.

CHORDS, in music, the strings or lines, by whose vibrations the sensation of sound is excited, and by whose divisions the several degrees of tune are determined. The strings of musical instruments are generally made of guts, though others are made of brass, or iron wire, as those of spin-nets, harpsichords, &c. Chords of gold wire, in harpsichords, yield a sound almost twice as strong as those of brass : chords or strings of steel yield a feebler sound than those of brass, as being less heavy and less ductile. The tone of a sound depends on the time or duration, of the stroke made on the drum of the ear, by a wave or pulse of air ; for as that is longer or shorter, the tone will be more grave or acute : and since all pulses

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move equally swift, the duration of a stroke will be proportional to the interval between the two successive pulses ; and consequently a sound is more or less grave or acute, in proportion to the length of that interval.

Hence it follows, that all the sounds, from the loudest to the lowest, which are excited by the vibrations of the same body, are of one tone. It likewise follows, that all those bodies, whose parts perform their vibrations in the same or equal times, have the same tone : also those bodies which vibrate slowest have the gravest and deepest tone, as those which vibrate quickest have the sharpest or shrillest tone.

The number of vibrations made by different chords in equal times, and upon which their tone depends, may be determined in the following manner : Where **BAC** (plate XII. fig. 6.) represents the figure which a musical chord assumes in its small vibrations ; then, as the tension of the chord is every where equal, let **P** represent this tension, or a weight equal to it, as a section of the chord perpendicular to its length ; **V** the force by which the motion of any point at **M** towards **A** **C** is accelerated, while the chord returns to its natural state in the circumference of a circle, whose diameter is **BC**. Bisect **BC** in **S**, and draw **SA** perpendicular to **BC** ; from any point in **SA**, as **G**, drawn **QM** parallel to **BC**, and **MN** parallel to **SA** ; this done, we shall

$$\text{have } V = \frac{m^2 P}{4 S B^2} \times \frac{S Q}{S Q}. \text{ See the article}$$

ELASTIC Curves. If we now suppose **N** to represent the weight of the chord, **L** its length, **g** the force of gravity, **D** the length of a given pendulum, **SA = a**, **SQ** or **MN = y** ; then, because **N = n g L**, or **n = \frac{N}{L g}** and **L = 2 S B**, it follows that

$$V = \frac{m^2 g y P}{N L}. \text{ Because } V \text{ is as } y, \text{ the di-}$$

stance of **M** from **A** **C**, the vibrations of the chord are similar to those of a pendulum ; and the time in which **M** describes **MN**, is to the time in which the pendulum **D** performs half a vibration, as

$$\sqrt{\frac{y}{V}} : \sqrt{\frac{D}{g}} \text{ or as } \frac{\sqrt{L N}}{m \sqrt{P}} \text{ to } \sqrt{D} ;$$

consequently the number of vibrations made by the chord, while the pen-

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chord vibrates one, is expressed by $\sqrt{\frac{D \cdot P}{L \cdot N}}$ which serves for determining

the number of vibrations made in a given time by any given chord that is extended by a given weight; or for comparing the number of vibrations by different chords in equal times. Thus if the weight *P* be the same, the number of vibrations is as

$\sqrt{\frac{L}{L'}}$; and when the chords are of the same kind (or *N* is at *L*) the vibrations are as $\frac{1}{L}$. If the chord be given, the num-

ber of vibrations is as $\sqrt{P}$. The ratio of

π to 1, or of the circumference to the diameter, enters the expression of the vibrations of the chord; and there seems to be a difference in this respect betwixt the theorems by which the vibrations of a musical chord, and those which are produced in the air by organ-pipes, or other wind-instruments, are to be determined; in these, where the sound is made by the vibration of a column of elastic air contained in the tube, the time of vibration or tone of the instrument will also vary with the length and diameter of the said column of air, and force of the voice, which compresses it; as will be easy to observe from experiments.

If one body be made to sound with another, their vibrations will coincide after a certain interval; and the shorter the interval of the coincidence, the more agreeable is the effect or consonance to the ear; consequently those which are most frequent produce the most perfect consonance or concord, as it is commonly called. When the times of vibration, therefore, are equal, the concord is more perfect, and more agreeable than any other; and this is called unison.

If the times of vibration are as 1 to 2, the coincidence will be at every second vibration of the quickest; and so this is the next perfect concord, and is what we commonly call a diapason, or octave.

If the times of the vibration be as 2 to 3, the coincidence will be at every third vibration of the quickest, which therefore is in the next degree of perfection; and this is called a diapente, or fifth. If the times of vibration are as 3 to 4, the coincidence will be at every fourth of the lesser; and this is called the diatessaron, or fourth. But this and the next which follow in order, are not

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so agreeable and pleasant to the judicious ear, and are therefore called imperfect concords.

CHORDEE, in medicine, a symptom attending a gonorrhœa, consisting in a violent pain under the frænum, and along the duct of the urethra during the erection of the penis, which is incurvated downwards. These erections are frequent and involuntary. The chordee being a squeezing of the corroded urethra between the cavernous bodies, and the erection being excited by the stimulating matter of a gonorrhœa, the cure is to be performed by preserving the urethra from being corroded, or by suppressing the erection, by which means the pressure of the urethra will be prevented. The first may be effected by mild diuretics, softening emulsions, and cooling injections; but the last can only be performed by those means that give the most sudden check to the swelling of the penis, such as immersion in cold water. It has been found by experience, that rubbing a mercurial ointment into the part affected, and along the duct of the urethra has done considerable service in this complaint.

CHOREA SANCTI VITI, St. VITUS's DANCE, in medicine. See VITUS's Dance.

CHORION, in anatomy, the exterior membrane which invests the fetus in the uterus; it is thick, spongy villose, and furnished with a vast apparatus of blood-vessels. It is contiguous to the uterus, and is seperable into two membranes or parts.

CHOROGRAPHY, the art of making a map of some country or province.

Chorography differs from geography, as the description of a particular country does from that of the whole earth; and from topography, as the description of a country differs from that of a town or district. See GEOGRAPHY and TOPOGRAPHY.

CHOROIDES, in anatomy, an epithet of several membranes, which, on account of the multitude of their blood-vessels, resemble the chorion. See CHORION.

CHORUS, in dramatic poetry, one or more persons present on the stage during the representation, and supposed to be bystanders, without any share in the action.

Tragedy in its origin was no more than a single chorus, who trod the stage alone, and without any actors, singing dithyrambics or hymns in honour of Bacchus. Theat.

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Thespis, to relieve the chorus, added an actor, who rehearsed the adventures of some of their heroes; and **Æschylus**, finding a single person too dry an entertainment, added a second, at the same time reducing the singing of the chorus, to make more room for the recitation. But when once tragedy began to be formed, the recitative, which at first was intended only as an accessory part to give the chorus a breathing-time, became a principal part of the tragedy. At length, however, the chorus became inserted and incorporated into the action; sometimes it was to speak, and then their chief, whom they called **coryphæus**, spoke in behalf of the rest, the singing was performed by the whole company; so that when the **coryphæus** struck into a song, the chorus immediately joined him.

The chorus sometimes also joined the actors in the course of the representation, with their plaints and lamentations, on account of any unhappy accidents that befel them: but the proper function, and that for which it seemed chiefly retained, was to shew the intervals of the acts; while the actors were behind the scenes, the chorus engaged the spectators; their songs usually turned on what was exhibited, and were not to contain any thing but what was suited to the subject, and had a natural connection with it; so that the chorus concurred with the actors for advancing the action. In the modern tragedies the chorus is laid aside and the music supplies its place.

CHORUS, in music, is when the whole company are to join the fingers in repeating certain couplets of verses. The word chorus is often placed in Italian music, instead of *tutti*, or *da capella*, which mean the grand chorus. When after chorus we meet with 1^o, or *primo*, we must understand that it is to be played in the first chorus; 2^o, *II^o*, or *secondo*, in the second; and, consequently, that the composition is for eight voices or different parts.

CHOUGH, or **CORNISH CHOUGH**, in ornithology, a species of *corvus*, otherwise called *coracias*. See **CORVUS** and **CORACIAS**.

CHRISM, oil consecrated by the bishop, and used in the Romish and Greek churches in the administration of baptism, confirmation, ordination, and extreme unction.

CHRIST, an appellation usually given to our Saviour, answering exactly to the Hebrew *Messiah*, and signifying one that is anointed. See **MESSIAH**.

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CHRIST-THORN, in botany, a name given to the *paliurus*, a species of *thamnus*. See **RHAMNUS**.

CHRISTENING. See **BAPTISM**.

CHRISTIAN, in a general sense, something belonging to Christ.

CHRISTIAN RELIGION, that instituted by Jesus Christ.

If we examine the nature and tendency of the religion itself which was taught by Christ, and by the apostles in his name, we shall find it to be worthy of God. It retaineth all the excellencies of the Old Testament revelation; for our Saviour came not to destroy the law and the prophets, but to fulfil them, and carry the scheme of religion there laid down to a still higher degree of excellency. The idea given us of God, of his incomparable perfections, and of his governing providence, as extending to all creatures, particularly towards mankind, is the noblest that can be conceived, and the most proper to produce worthy affections and dispositions towards him. Great care is especially taken to instruct us to form just notions of God's illustrious moral excellencies, of his wisdom, his faithfulness and truth, his impartial justice, and righteousness; and spotless purity: but, above all, of his goodness and love to mankind, of which the gospel contains and exhibits the most glorious and attractive discoveries and displays that were ever made to the world. The exceeding riches of the divine grace and mercy are represented in the most engaging manner. Pardon and salvation are freely offered upon the most gracious terms; the very chief of sinners are invited, and the strongest possible assurances given of God's readiness to receive them upon their sincere repentance and reformation; and at the same time, to prevent an abuse of this, the most striking representations are made of God's just wrath and displeasure, against those that obstinately go on in presumptuous sin and disobedience. It is especially the glory of the gospel, that the great realities of an unseen eternal world are there set in the most clear and open light; there are clearer discoveries made, and far stronger assurances given, of that future life and immortality, than were ever given to mankind before.

As to the precepts of Christianity, they are unquestionably holy and excellent. The purest morality is taught in all its just and noble extent, as taking in the whole of our duty towards God, our neighbours, and ourselves.

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As to piety towards God, the idea there given of it is venerable, amiable, and engaging; we are required to fear God, but it is not with a servile horror, such as superstition inspires, but with a filial reverence. We are directed and encouraged to address ourselves to him as our heavenly Father through Jesus Christ the Son of his love, and in his name to offer up our prayers and praises, our confessions and thanksgivings, with the profoundest humility becoming creatures deeply sensible of their own unworthiness, and yet with an ingenuous assurance, hope, and joy. We are to yield the most unreserved submission to God as our sovereign Lord, our most wise and gracious governor, and most righteous benefactor; to resign ourselves to his disposal, and acquiesce in his providential dispensations, as being persuaded that he ordereth all things really for the best; to walk continually as in his sight, and with regard to his approbation; setting him before us as our great all-seeing witness and judge; our chiefest good and highest end. Above all, we are required to love the Lord our God with all our heart, and mind, and strength, and to show that we love him by keeping his commandments, by aspiring after a conformity to him in his inimitable perfections, and by endeavouring, as far as we are able, to glorify him in the world.

CHRISTIANS, those who profess to believe and practise the Christian religion, and are baptized in the name of Jesus Christ.

The name of Christian was first given to the disciples of Christ at Antioch, in the year 40.

CHRISTIAN VI. king of Denmark, visited England July 7, 1605.

CHRISTIAN VII. king of Denmark, married Matilda, sister to George III. of England, in 1767, visited England in 1768, and divorced his queen in 1772.

CHRISTIANS of St. John, a sect of Christians very numerous in Bassara, and the neighbouring towns: they formerly inhabited along the river Jordan, where St. John baptized, and it was from thence they had their name.

CHRISTIANS of St. Thomas, a sort of Christians in a peninsula of India, on this side of the gulph.

CHRISTMAS, a festival of the Christian church, observed on the 25th of December, in memory of the nativity of Jesus Christ. Whether it was always

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observed on the 25th of December, is a matter of doubt. Dr. Cave is of opinion that it was first kept by the Eastern church in January, and confounded with the Epiphany, till, receiving better information from the western churches, they changed it to that day. St. Chrysostom affirms, that it was not above ten years since Christmas began to be celebrated in the church of Antioch upon that day: Clemens Alexandrinus reckons, from the birth of Christ to the death of Commodus, exactly one hundred and ninety-four years, one month, and thirteen days; which time, being taken according to the Egyptian account, and reduced to the Julian or Gregorian stile, makes the birth of Christ fall on the 25th or 26th of December; yet, notwithstanding this, the same father tells us, that there were some who more curiously searching after the year and day of Christ's nativity, affixed the latter to the 25th of the month *Pachon*. Now in that year in which Christ was born, the month *Pachon* commenced the 20th of April; so that according to this computation, Christ was born, on the 16th of May. Hence we may see how little certainty there is in this matter, since so soon after the event, the learned were divided in opinion concerning it. As to the antiquity of this festival, the first footsteps we find of it were in the second century, about the time of the emperor Commodus.

CHRISTMAS ROSE, in botany, a name sometimes given to a species of black hellebore. See **HELLEBORE**.

CHRISTOPHORIANA, christopher-herb, in botany, a genus of plants, called by Linnaeus *aërea*.

CHROASTACES, in natural history, a genus of pellucid gems, comprehending all those of variable colours, as viewed in different lights.

CHROMA, in music, a note or character of time, usually termed a quaver. See **QUAVER**.

Chroma is also a graceful way of singing, or playing with quavers and trilloes.

CHROMATIC, in painting, a term used to signify the colouring, which makes the third part in the art of painting.

CHRONIC, or **CHRONICAL**, among physicians, an appellation given to diseases that continue a long time, in contradistinction to those that soon terminate, and are called acute.

Chronical diseases may be said to be produced in the body by some peccancy in the juices,

juices, either contracted by degrees, or else left by some acute distemper ill cured.

CHRONICLE, in literature, a species of history, disposed according to the order of time, and agreeing in most respects with annals. See **ANNALS**.

The word chronicle is now become obsolete, being seldom used except in speaking of the old English histories, as Stow's Chronicle, Holinshead's Chronicle, Baker's Chronicle, &c.

Books of CHRONICLES, in the canon of Scripture, two sacred books, signifying in the Greek, remains, additions, or supplements, as containing many circumstances omitted in the other historical books. In effect, the paralipomena, or chronicles, are an abridgement or sacred history to the return of the Jews from the Babylonish captivity.

CHRONOGRAM, a species of false wit, consisting in this, that a certain date or epocha is expressed by numeral letters of one or more verses.

CHRONOLOGY, the art of computing time, in order to determine with accuracy, the events mentioned in history. Chronology has been justly called the soul of history; for without chronology history is lifeless, and unless the times of historical narrations are in some measure ascertained, history will be very little preferable to romance. We say in some measure, because it is sometime impossible to fix the æreas or epochas of transactions with certainty; and the farther we go back into antiquity, the greater will this uncertainty be.

Materials are not only wanting on account of the vast number of books which have been lost, but those which remain frequently contradict each other.

In writing ancient history, we are to mention whose chronology we follow, for fear of leading our readers into an error; for, according to some authors, there are, from the beginning of the world, to the Christian æra, but 3740 years; according to others, 6934; which makes a difference of 3194 years.

The birth of Christ is also very much disputed, authors varying even in this point, seven or eight years. But, since that time, chronology begins to be much more certain, by the number of monuments we have left, and the differences we meet with in authors being much less considerable.

Chronology is not confined to past times and fixing ancient epochas; it extends

itself to other uses, particularly in the church. By the help of this, we fix the moveable feasts; and among others, that of Easter; and by the means of the epacts, periods, and cycles, we form the calendar. So that there are properly two kinds of chronology; one purely historical, founded on facts transmitted to us by antiquity; the other mathematical and astronomical, which settles the different epochas by calculations and observations, and serves to regulate the seasons when the feasts of the church should be celebrated.

CHRONOMETER, in general, denotes any instrument, or machine, used in measuring time; such are dials, clocks, watches, &c. The term chronometer, however, is generally used in a more limited sense, for a kind of clock so contrived as to measure a small portion of time with great exactness, even to the sixteenth part of a second; of such a one there is a description in Desaguliers's Experimental Philosophy, invented by the late ingenious Mr. George Graham; which must be allowed to be of great use for measuring small portions of time in astronomical observations, the time of the fall of bodies, the velocity of running waters, &c. But long spaces of time cannot be measured by it with sufficient exactness, unless its pendulum be made to vibrate in a cycloid.

CHRYSLIS, in natural history, a state of rest and seeming insensibility which butterflies, moths, and several other kinds of insects, must pass through before they arrive at their winged or most perfect state. See **BUTTERFLY**.

The first state of these animals is in the caterpillar or reptile form: then they pass into the chrysalis-state, wherein they remain fixed to one spot, and surrounded with a case or covering, which is generally of a conical figure; and lastly, after spending the usual time in this middle state, they throw off the external case wherein they lay imprisoned, and appear in their most perfect and winged form of butterflies, or flies. Through the whole course of this transformation, the animal remains the same, only surrounded with different coverings: in the caterpillar form, it is a kind of fetus, or embryo, wrapped up in several coats, the limbs of which can only be discovered by the assistance of the microscope: in the chrysalis or nymph-state, it acquires a farther degree of maturity; and then the limbs, wings, &c. become perfectly distinct; and at length it disengages

gages itself, and becomes an inhabitant of the air, adorned with a peculiar kind of plumage; in this last state the two sexes copulate, and the female lays her eggs to be afterwards hatched into caterpillars, and to pass through the like changes with the parent-insect.

CHRYSOCOMA, or CHRYSOCOME, goldlocks, in botany, a genus of plants, the compound flower of which is tubulous, the proper one of a funnel-form, with a quinquefid limb.

CHRYSOGNONUM, moth-mullein, in botany, a genus of plants.

CHRYSOLEITE, in natural history, a gem known by the ancients under the name of the topaz; and the true chrysolite of the ancients, which had its name from its fine gold-yellow-colour, is now universally called topaz by modern jewellers. See **TOPAZ**.

CHRYSOLEITE-PASTE, a kind of glass made in imitation of natural chrysolite, by mixing two ounces of prepared chrysolite, with ten ounces of red-lead, adding twelve grains of crocus martis made with vinegar; and then baking the whole for twenty-four hours, or longer, in a well-luted crucible.

CHRYSOPHYLLUM, star-apple, in botany, a genus of plants, the flower of which is monopetalous and campanulated, with the limb divided into ten segments, alternately roundish and patulous, and narrow and erect; the fruit is a subovated large berry, with one cell, containing three osseous seeds.

CHRYSOSPLENIUM, golden - saxifrage, in botany.

CHUB, or CHUBB, in ichthyology, the English name of a species of cyprinus, with eleven rays in the pinna ani. See **CYPRINUS**.

CHURCH, has different significations, according to the different subjects to which it is applied. 1. It is understood of the collective body of Christians, or all those over the face of the whole earth, who profess to believe in Christ, and acknowledge him to be the Saviour of mankind.

2. Church is applied to any particular congregation of Christians, who at one time, and in one place, associate together and concur in the participation of all the institutions of Jesus Christ, with their proper pastors and ministers. Thus we read of the church of Antioch, the church of Alexandria, the church of Thessalonica, and the like.

3. Church denotes a particular sect of

Christians distinguished by particular doctrines and ceremonies. In this sense we speak of the Romish church, the Greek church, the reformed church, the church of England, &c.

4. Church is used to signify the body of ecclesiastics, or the clergy, in contradistinction to the laity. See **CLERGY**.

* **CHURCHES**, first began to be built in 696, fifty new ones, were built in London, by order of Parliament, 1710.

* **CHURCH-YARDS**, were first consecrated in 317, and permitted in cities, in 740.

* **CHURCHILL (JOHN)** duke of Marlborough, and prince of the holy Roman empire, one of the greatest generals, and most illustrious heroes the world has produced, was the son of Sir Winston Churchill, and was born at Ashe, in Devonshire, on Midsummer-day, 1650. His father carried him very early to court, where the beauty of his person, and the pregnancy of his parts, recommended him, when but twelve years of age, to the notice of the duke of York, who made him his page, and about 1666 he had a pair of colours. His first opportunity of shewing his courage was at Tangier, which was then in our hands and besieged by the Moors. In 1672 the duke of Monmouth, commanding a body of English auxiliaries in the service of France, Mr. Churchill attended him, was made captain of grenadiers in the duke's own regiment, and distinguished himself in that famous campaign against the Dutch; his majesty therefore made him lieutenant-colonel, and the duke made him gentleman of his bed-chamber, and afterwards master of the robes. In 1682 he was created baron of Eymouth in Scotland, and colonel of the third troop of guards; and in 1685 king James created him baron Churchill of Sandridge, in the county of Hertford. And being lieutenant-general of the king's forces, he the same year defeated the duke of Monmouth's army, and took him prisoner. But on his royal master's attempting to over-turn the laws and the established religion, he went over to the prince of Orange, leaving a letter for the king, expressing the reasons of his conduct. During the reign of king William, he distinguished himself on many occasions; was raised to several considerable posts of honour, and was made earl of Marlborough; but in the height of his favour he was suddenly disgraced; stripped of his employments, and committed to the Tower

for high treason, on the evidence of some profligate persons confined in Newgate for their crimes; but their perjuries being fully detected, he was restored to favour. King William on the 19th of June 1698, appointed him governor to the duke of Gloucester, with this extraordinary compliment, "My lord, make him but what you are, and my nephew will be all I wish to see him." He was after this three times appointed one of the lords justices, during that king's absence. King William also appointed him general of foot, and commander in chief of a body of troops he sent into Holland, and created him ambassador extraordinary to the States General. About a week after King William's death, the earl of Marlborough was constituted knight of the garter, and soon after declared captain-general of all her majesty's forces, and sent over to the Hague with the same character as before; when the states not only concurred in all that he proposed, but of their own motion, declared him captain-general also of their forces, with an appointment of one hundred thousand florins per annum, and left to him the rank of settling the general officers. War being declared against France and Spain on the fourth of May 1702, the earl marched into Flanders, and in the first campaign made himself master of the castles of Gavenbroeck and Woerts, the towns of Venlo, Ruremond, and Stevenswaert, together with the city and citadel of Liege, which last was taken sword in hand. But at the end of the campaign, his lordship, in his passage by water, was taken prisoner by a party of thirty Frenchmen from the enemy's garrison at Gueldres, when by an admirable presence of mind, he shewed them an old pass belonging to his brother, which he happened to have in his pocket, and discovered so little concern, that he was suffered to proceed, and arrived at the Hague. On his return to England he received the thanks of both houses of Parliament, and was created duke of Marlborough. The next year he invested and took Bonn, Limburgh, and Gueldres, and the campaign being over, he went to Dusseldorp, to meet the late emperor, then styled Charles III. king of Spain, who made him a present of a very rich sword from his side.

In 1704, he forced the enemy's entrenchments at Schullenberg, and obliged them to fly with precipitation, after the loss of one third of their troops. On the

second of August he gained the glorious battle of Hochster, in which thirteen thousand men, among which was marshal Tallard, with twelve hundred officers were made prisoners, and fourteen thousand men killed or drowned, besides a vast number that were lost in their precipitate retreat. After this glorious action, by which the empire was saved, and the whole electorate of Bavaria conquered, his grace pursued the French till he forced them to repass the Rhine: he then took possession of Homberg, Treves, &c. had the pleasure of seeing prince Lewis of Baden take Landau; and then making a tour to Berlin, he by a short negotiation suspended the disputes between the king of Prussia and the Dutch. On the 14th of December he arrived in England, laden with the trophies of his victories, bringing with him marshal Tallard, and twenty-six other officers of distinction, and one hundred and twenty-one standards, and one hundred and seventy-nine colours, which by the queen's order, were hung up in Westminster-hall. He received the solemn thanks of both houses of Parliament.

The next summer, the French recovered Huy, and laid siege to Liege; but his grace by a quick march raised the siege of the citadel of Liege, recovered Huy, and forced the French lines. Then making a tour to Vienna, Berlin, and Hanover, the new emperor Joseph made him a present of the principality of Mindelheim. In 1706 his grace gained the battle of Ramillies, Louvain, Brussels, Mechlin, Ghent, and Bruges, submitted to king Charles, III. of Spain without a stroke; Oudenard surrendered upon the first summons; Antwerp followed this example, and in the space of a fortnight the duke reduced all Brabant. He laid siege to Ostend, and took it; he besieged and took the strong fortress of Menin, Dendermonde, and Aeth. In 1708, he gained the battle of Oudenard, in which four thousand of the French were killed, and seven thousand taken prisoners, with above one hundred standards and colours; the cities of Lille and Ghent were also taken. The next year his grace took Tournay, and the famous battle of Malplaquet was fought, in which after a bloody engagement, the French were entirely defeated, and this victory was succeeded by the surrender of Mons. In short, after these, and several other instances of the most admirable conduct, by which Lewis XIV. was humbled, and all

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Europe astonished at his grace's amazing progress; after having received all public testimonies of his merit, and after Blenheim house was built as a monument of his glory, his grace upon the change of the ministry, was again stripped of his employments, and charged with his misapplying the public money. He vindicated himself with temper, and then went abroad; but he returned after the queen's death, and was restored to his posts. He was the most accomplished courtier of his time, an able statesman, and a consummate general. He died at Windsor-lodge, on the 16th of June 1722, in the seventy-third year of his age, leaving four daughters, upon whom in succession his honours were entailed.

CHURCHILL (CHARLES) a celebrated satirist, was the son of the rev. Mr. Charles Churchill, curate and lecturer of St. John's, Westminster, and was educated in Westminster-school. He was afterwards refused admittance into the university of Oxford, for want of a proper skill in the learned languages, on which he was again sent to Westminster-school, where, at seventeen years of age, he contracted an intimacy with a lady, to whom he was married, and their mutual regard for each other continued for several years. At the usual age of going into orders, Mr. Churchill was ordained by the late bishop of London, and obtained a small curacy in Wales of thirty pounds a year. Thither he carried his wife; they took a small house, and he passed through the duties of his station with assiduity and cheartfulness. He was beloved and esteemed by his parishioners; but endeavouring to advance his fortune, by keeping a cyder-cellar, it involved him in difficulties which obliged him to leave Wales and come to London, where his father dying soon after, he stepped into the church, in which his father had officiated; and in order to improve his income, he taught young ladies to read and write English at a boarding-school, kept by Mrs. Dennis, where he behaved with that decency and proper decorum which became his profession. The first poem Mr. Churchill published was the *Rosciad*, which was received with great applause; and it being ascribed to a combination of wits, the second edition appeared with his name. His next performance was his *Apology to the Critical Reviewers*, which also received the public favour. But while his writings thus amused the town, it was disgusted by his

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actions. He now quitted his wife, resigned his gown, commenced a complete man of the town, and giddy with applause, seemed to think his talents a sufficient atonement for his follies. He now wrote a poem called *Night*, which was soon followed by the *Ghost*; but these last had not the rapid sale he expected; but his *Prophecy of Famine* soon made him ample amends. This was followed by his *Gotham*, *Independence*, an epistle to *Hogarth*, the *Times*, &c. but going to *Bologna*, on a visit to Mr. Wilkes, he was there attacked by a millary fever, which carried him off in a few days. After his death, his poems were collected and printed together, in two volumes octavo.

CHURCH - WARDENS, officers chosen yearly, in Easter-week, by the minister and parishioners of every parish, to look after the church, church-yard, church-revenues, &c. also to observe the behaviour of the parishioners, in relation to such misdemeanors as appertain to the censure or jurisdiction of the ecclesiastical court.

CHURCHING of Women after Child-Birth, an office in the Liturgy, containing a thanksgiving to be used by women after being delivered from the great pain and peril of child-birth. This practice, like many other Christian usages, undoubtedly took its rise from the Jewish rite of purification enjoined by the law of Moses.

CHYLE, in the animal æconomy, a milky fluid, secreted from the aliments by means of digestion.

The principles of the chyle seem to be sulphureous, mucilaginous, saline, and aqueous. It is a kind of natural emulsion, both with regard to the colour, the ingredients, and the manner of preparation. There is this difference between the artificial and natural emulsion, that the latter is far more pure, and is prepared with much greater apparatus, not by the sudden expression of part of the liquid, but by a gentle and successive percolation.

CHYLIFICATION, the formation of the chyle, or the act whereby the food is changed into chyle. See **FOOD** and **CHYLE**.

Chylification commences by comminuting the aliment in the mouth, mixing it with saliva, and chewing it with the teeth; by these means the food is reduced into a kind of pulp, which being received into the stomach, mixes with the juices thereof; and thus diluted begins to ferment or pu-

trify; and assuming a very different form from what it had before, grows either acid or rankid. Here it meets with a juice separated from the blood by the glands of that part, whose excretory ducts open into the cavity of the stomach; by the commixture of these liquors, whether of saliva or the juice of the stomach, a proper menstruum is composed, by which the parts of the aliment are still more and more divided by its insinuating into their pores, and acquire still a greater likeness to the animal fluids, and form what is called chyle. The stomach, by means of its muscular fibres, contracting itself, gradually discharges its contents by the pylorus into the duodenum; in which gut, after a small semicircular descent, it meets with the pancreatic juice and bile: both which joining with it, renders some part of the aliment more fluid, by still disuniting the grosser parts from the more pure, and here the chyli-fication is made perfect.

CHEMISTRY, or CHEMISTRY.
See **CHEMISTRY.**

CICATRÍCULA, among natural historians, a small whitish speck in the yolk of an egg, supposed to be the first rudiments of the future chick.

CICATRIX, in surgery, a little seam or elevation of callous flesh rising on the skin, and remaining there after the healing of a wound or ulcer. It is commonly called a scar. In young infants these scars diminish much, and sometimes vanish when they come to age, as may be seen in the pits of the small-pox; and in growing they are sometimes observed to change their situation.

CICATRIZANTS, in pharmacy, medicines which assist nature to form a cicatrix. Such are Armenian bole, powder of tully, desiccativum rubrum, &c.

Cicatrizants are otherwise called escharotics, epulotics, incarnatives, agglutinants, &c.

CICELY, the English name of a genus of plants. See **MYRRHIS.**

CICER, the chick-pea, in botany, a genus of plants, the flower of which is papilionaceous: the fruit is a turgid pod, of a rhomboid shape, containing two roundish seeds. The seeds of this plant are accounted in some measure absterfive, and for that reason are met with in diuretic compositions in the official medicines: but they are very seldom found in other prescriptions.

CICORIUM, succory, in botany, a genus of plants, which is regarded in all

the shop-compositions, where it is concerned, as an hepatic. We seldom meet with it in extemporaneous prescriptions, unless in a few medicated ales.

CICINDELA, in zoology, the same with the *perilampus*, or glow-worm, a genus of insects; of which authors enumerate the following species: 1. The field or green glow-worm, with ten white spots on the exterior wings. 2. The black glow-worm, with six white spots on the exterior wings, common in woody places. 3. The brassy glow-worm, with broad excavated spots in the wings, common about the banks of rivers. 4. The black glow-worm, with a reddish thorax; and several other species distinguished by the like peculiarities.

CICUTA, hemlock, in botany, a tall umbelliferous biennial plant, common about the sides of fields, under hedges, and in moist shady grounds. This herb is recommended externally, in cataplasms, fomentations, and plasters, as a powerful solvent and discutient. Taken internally, in no great quantity, it has occasioned disorders of the senses; sleep, convulsions, and in some instances death; and hence it is ranked among the poisonous plants: Boerhaave tells us, that by the effluvia of the herb, bruised and strongly smelt to, he became vertiginous. It is said, that to certain brute animals it is innocent; and that its ill qualities are corrected by vinegar or other vegetable acids. Of its effects in small doses insufficient to do harm, in which it has been by some recommended, nothing material was known, till the happy experiment of Dr. Storck, lately published, gave room to hope not only that the virtues ascribed to it in external applications, are better founded than practitioners in general seem now to suppose, but likewise that it is a plant of very great importance as an internal medicine. Dr. Storck relates, that bags of the dry leaves, quitted together, boiled for a few minutes in water, or in milk, where they could not otherwise be borne, on account of their smell and the itching they produced, then squeezed from the superfluous liquid, and applied warm, checked the progress of very bad gangrenes, and procured a separation of the corrupted parts: that the same application, in a person of sixty who had been gouty for many years, immediately abated the pains, softened and dissolved the tophaceous concretions, and occasioned the next fit to be milder and of shorter continuance: that its effects were likewise considerable in oedematous tumours, schirrhous

strumæ,

Stomach, indurations of the glands of the breast, and in very bad Ulcers: that nevertheless some received from it no benefit, though no harm: that in inflammations or hot ferous tumours, it was less proper than in the above cases, or had place only after evacuations; and that plasters, containing the juice of the hemlock, often resolve and discuss what resists all other applications. It is in form of plaster that this herb, among us, has been chiefly made use of: the recent juice is mixed with a solution of twice its quantity of gum ammoniacum made in vinegar of squills, and the mixture boiled down to a due consistence. For internal purposes, he directs the juice, while fresh, to be inspissated in an earthen vessel over a very gentle fire, and kept continually stirring to prevent its burning, till it acquires the consistence of a thick extract; which is to be mixed with so much of the powdered leaves, as will reduce it into a mass fit for being formed into pills. This preparation, Dr. Storck says, was given to a little dog, in the quantity of a scruple; taken by himself, in doses of one and two grains, every morning and evening, for several days; continued by persons in health, for a year or two; increased, in some cases, to a dram and a half in a day, without producing any ill consequence, or affecting any of the actions, secretions, or excretions, of the body. It nevertheless had very powerful and salutary effects in some reputed incurable diseases; acting, though slowly and insensibly, as a high resolvent: he relates histories of inveterate schirrhuses, cancers, and the worst kinds of ulcers and fistulae, being completely cured by it; and says it resolves also recent cataracts, or at least restrains their progress. He begins always with small doses; giving one pill, of two grains, first twice a day, then thrice a day, and gradually increasing the number to six or more for a dose. The good effects of the medicine were sometimes visible in a few days; though the cure generally required several months. The trials of this medicine made among us, have not, as yet, so far as we can learn, been accompanied with so much success. However, in some cases in which it was applied, it was apparently of great benefit; in some, in which it did no service; and in some, in which it affected the speech and hearing. It were to be wished, that the author had been more explicit in regard to the preparation of the medicine; for there are grounds to presume, that its qualities will

vary, not a little, according to the season or term of age at which the plant is gathered; according as the juice is inspissated entire, or suffered previously to settle; and according to the consistence of the extract requiring a greater or less proportion of the leaves in substance to be mixed. The preparers of the extract in England, have generally depurated the juice; though Dr. Storck's direction of inspissating it, while recent, seems to imply that it is to be taken before it has suffered any separation of its parts.

The root of hemlock is generally supposed to be, both in external applications, and when taken internally, of more activity than the leaves. Storck relates, that on being cut, it yields a bitter acrid milk, of which a drop or two, applied to the tip of the tongue, occasioned a rigidity, pain, and swelling of the part, so as to prevent speech; and that he was freed from this complaint, by washing and rubbing the tongue with citron juice. In drying, it seems to lose of its virulence: he says he has taken a grain or two of the powder without injury: there are instances of twenty and thirty grains being given with advantage, in schirrhuses of the liver, &c. in quartan agues on the approach of a fit, and even in acute fevers. Nor does the fresh root appear to be at all times of equal virulence; it having been chewed freely, without any other effect being perceived, than an impression of sweetness resembling that of parsley roots or carrots: there are instances of some drams, and even ounces, having been taken, without producing any ill consequence. So variable does this plant appear to be in its qualities; if really the subject of the several histories was precisely the same species of plant.

The seeds have been recommended by some as demulcent, pectoric, and antiphrodisiac. Of their real qualities, little more is known with certainty, than that they are innocent to some kinds of birds. Mr. Ray says, he found the crop of a thrush full of hemlock seeds, even at the season when corn was plentiful.

CICUTA-AQUATICA, long-leaved water hemlock, a poisonous plant greatly resembling smallage, growing in many meadows and watery places, and which have been too often fatally mistaken for it. It differs from smallage in the leaves being long, slender, and deeply cut, commonly into three segments: those of

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lage are cut in the same manner, but the segments are short and broad.

CILIA, the eye-lashes, in anatomy, are certain rigid hairs situated on the arch or tarsus of the eye-lids, and bent in a very singular manner. They are destined for keeping external bodies out of the eye, and for moderating the influx of light.

CILIARE, or **LIGAMENTUM CILIARE**, or **CILIARIS PROCESSUS**, in anatomy, a range of black fibres disposed circularly, having their rise in the inner part of the uvea, and terminating in the prominent part of the crystalline humour of the eye, which they surround.

CIMOLIA TERRA, in natural history, a species of white marle, which is ponderous and friable, and makes a considerable effervescence with aqua-fortis.

CIMOLIA ALBA, a name given to the hard, heavy, white clay, whereof tobacco-pipes are made.

CINCHONA, in botany, a genus of plants, the flower of which is monopetalous and infundibuliform. This is the tree which produces the quinquina, or Peruvian bark. See **QUINQUINA**.

CINCTURE, or **CEINTURE**, in architecture, a ring, list, or orlo at the top and bottom of the shaft of a column, separating the shaft at one end from the base, and at the other from the capital. See **COLUMN** and **SHAFT**.

The cincture is supposed to be in imitation of the girts or ferrils, which were used by the ancients to strengthen and preserve the primitive wooden columns.

CINERITIOUS, an appellation given to different substances, on account of their resembling ashes, either in colour or consistence.

CINNABAR, in natural history, native or factitious. The native cinnabar is an ore of quicksilver moderately compact, very heavy, and of a peccant striated red colour. In this ore the quicksilver is mixed in different proportions with sulphur. It is such an ore, as to be no other than mercury impregnated with a small quantity of sulphur, just enough to shew it in that state, being commonly more than six parts of mercury to one of sulphur: and even the poorest cinnabar yields one half mercury: it is of a very bright glittering appearance, when fresh broken; and is usually found lodged in a bluish, indurated clay, though sometimes in a greenish talcy stone. For the method of separating mercury from cinnabar, see **MERCURY**.

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Factitious CINNABAR, a mixture of mercury and sulphur sublimed, and thus reduced into a fine red glebe. The best is of a high colour and full of fibres, like needles.

This as well as the native cinnabar, is excellent in epilepsies, and all complaints of the head and nerves. But the factitious is rather to be preferred, as it does not excite nausea, vomitings, and other disorders which arise from vitriolic and perhaps arsenical particles blended by nature among some of the masses of the native mineral.

Cinnabar is likewise used by painters as a colour, and is rendered more beautiful, by grinding it with gum water and a little saffron.

There is likewise a blue cinnabar, made by mixing two parts of sulphur with three of quicksilver and one of sal ammoniac.

CINNABAR of Antimony, a preparation of mercury, sulphur, and antimony, made by sublimation, said to be a good diaphoretic and alterative. See **ANTIMONY**.

CINNAMON, *Cinnamomum*, the bark of a tree of the bay kind, growing in the island of Ceylon; freed from the outer green or greyish part, and cut into long slices, which curl up, in drying, into quills or canes, the form in which it is brought to us; very thin, light, of a reddish yellow colour, or pale rusty iron colour, somewhat tough in breaking, and of a fibrous texture like wood. It is frequently mixed with another bark, greatly resembling it in appearance, but much weaker in virtue, *cassia lignea*: this last is distinguished by the close smooth surface which it exhibits on being broken, and by its remarkable slimy taste. This bark is one of the most grateful of the aromatics; of a fragrant smell, and a moderately pungent, glowing, but not fiery taste, accompanied with a considerable sweetness, and some degree of astringency. The thinnest pieces are found to be strongest; as containing the largest proportion of the active part, and the least of the inert woody matter.

It is said, that from sixteen ounces of good cinnamon, about two drams of oil may be collected.

There is a cordial water commonly prepared in the shops, by drawing off a gallon of proof spirit from a pound of cinnamon. A like preparation might be obtained rather more advantageously, and free from the foreign flavour which the

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common proof-spirits, are accompanied with, by adding to the simple water a suitable quantity of pure rectified spirit.

White CINNAMON, called also winter's bark, is the bark of a tree frequent in the islands of St. Domingo, Guadeloupe, &c. of a sharp biting taste like pepper. Some use it instead of nutmeg; and in medicine it is esteemed a stomachic and antiscorbutic. See *WINTERANUS Cortex*.

CINQUEFOIL, *Quinquifolium*, in botany, the same with the potentilla of Linnaeus. See *POTENTILLA*.

Cinquefoil roots are esteemed drying, astringent, and antifebrile; and accordingly have been prescribed with success in agues, and fluxes of all kinds.

CION, or *CYON*, among gardeners, a young sprig, or sprout of a tree.

CIPHER, or *CYPHER*, one of the Arabic characters, or figures, used in computations, formed thus 0.

CIPHER is also a kind of enigmatic character, composed of several letters interwoven, which are generally the initial letters of the persons names for whom the cyphers are intended. These are frequently used on seals, coaches, and other moveables.

CIPHER denotes likewise certain characters disguised and varied, used in writing letters that contain some secret, not to be understood but by those between whom the cipher is agreed on. There are several kinds of ciphers. It is said that king Charles I. had a cypher, consisting only of a straight line differently inclined: and there are ways of cyphering by the mere punctuation of a letter, whilst the words of a letter shall be non-significants, or sense that leaves no room for suspicion.

CIPPUS, in antiquity, a low column, with an inscription, erected on the highroads, or other places, to show the way to travellers, to serve as a boundary, to mark the grave of a deceased person, &c.

* *CIRCE*, in fabulous history, was the daughter of Phœbus, by Persis, and a famous sorceress. She poisoned her husband, the king of the Sarmatæ, for which she was expelled the kingdom, and fled to a promontory in Tuscany, which afterwards took her name. She there became enamoured with Olausus, who preserving Scylla to her, she changed her into a sea-monster. She transformed Pious, king of the Latins, into a woodpecker: and Ulysses being cast away on her coast, she

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received him kindly, but transformed his companions into swine and other beasts. But Ulysses was preserved by Mercury, who gave him the herb moly, to secure him from her enchantments. Mythologists observe, that Circe is a lively image of sensual pleasure, which degrades the man and changes him into a brute.

CIRCENSIAN GAMES, *Circenses Ludi*, a general term, under which was comprehended all combats exhibited in the Roman circus, in imitation of the olympic games in Greece.

CIRCLE, in geometry, a plane figure, comprehended under one single line, which returns into itself, having a point in the middle, from which all the lines drawn to its circumference are equal. Every circle is supposed to be divided into 360 equal parts called degrees. The circle is the most capacious of all figures, containing the greatest area under the least bounds. The area of a circle is found by multiplying the periphery by the fourth part of the diameter, or half the periphery by half the diameter.

Circles, and their inscribed similar figures, are always as the squares of the diameters, so that they are in a duplicate ratio of their diameters, and consequently of their radii. A circle is equal to a triangle, whose base is equal to a periphery, and its altitude to the radius. Circles therefore are in a ratio compounded of the peripheries and the radii.

The method of finding the circumference of a circle from its diameter, or radius, being given, is one of the most useful problems in geometry.

The most direct and easiest way is by the help of fluxions, and infinite series.

CIRCLE of perpetual Occultation, is a lesser circle of the sphere parallel to the equator, being described by any point of the celestial sphere which touches the southern part of the horizon: all the stars that are included within this circle never rise.

CIRCLES of Declination on the Globe, so some call the meridians on which the declination or distance from the equator of any planet or star is accounted.

CIRCLES of Longitude on the Globe, are great circles passing through the star and the pole of the ecliptic; they determine the star's longitude, reckoned from the beginning of Aries. On these circles are counted the latitude of the stars.

CIRCLES of Position, are circles passing by the common intersections of the horizon

horizon and meridian, and through any degree of the ecliptic or the center of any star or other point in the heavens; and are used for the finding out the situation or position of any star, &c.

Vertical CIRCLES are great circles of the sphere, intersecting each other in the zenith and nadir; these cut the horizon at right angles.

CIRCULAR, in a general sense, any thing that is described or moved in a round, as the circumference of a circle, or surface of a globe.

CIRCULAR LETTER, a letter directed to several persons who have the same interest in some common affair.

CIRCULAR LINES, in mathematics, such straight lines as are divided from the divisions made in the arch of a limb, such as sines, tangents, secants, chords, &c. See SINE and TANGENT.

CIRCULAR NUMBERS, called also spherical ones, according to some, are such whose powers terminate in the roots themselves.

Thus for instance, 5 and 6, all whose powers end in 5 and 6, as the square of 5 is 25, the square of 6 is 36, &c.

CIRCULAR SAILING is the method of sailing by the arch of a great circle. See SAILING.

CIRCULAR VELOCITY, in the new astronomy, the velocity of any planet, or revolving body, which is measured by the arch of a circle.

CIRCULATION, the act of moving round, or in a circle: thus we say, the circulation of the blood, the circulation of the sap, &c.

CIRCULATION of the Blood, the natural motion of the blood in a living animal, whereby that fluid is alternately carried from the heart into all parts of the body, by the arteries, from whence it is brought back to the heart by the veins.

This motion is chiefly caused by the dilation and contraction of this organ, and is the principle on which life depends; for when it ceases in any part, that part dies; when it is diminished, the operations are weak; and when it ceases totally, life is extinguished.

All the veins discharge themselves into the ventricles of the heart; from hence all the arteries arise: the blood expelled out of the right ventricle must be carried, through the pulmonary artery, into the lungs; from which it must be returned by the pulmonary veins, to the left ventricle; from the left ventricle

the blood thus imported is, by the contraction of that part, again expelled into the aorta, and by it distributed all over the rest of the body, and thence is returned again to the right ventricle by the cava, which completes the circulation.

This circulation becomes actually visible, with the assistance of a microscope, especially in fish, frogs, &c. wherein the innervation, or union of the extremities of the arteries with those of the veins, together with the globules of the blood flowing from the one into the other, may be plainly seen.

As to the velocity of the circulating blood, and the time wherein the circulation is completed, several computations have been made. By Dr. Keil's account, the blood is driven out of the heart into the aorta with a velocity which would carry it twenty-five feet in a minute: but this velocity is continually abated in the progress of the blood, in the numerous sections or branches of the arteries; so that before it arrives at the extremities of the body, its motion is infinitely diminished. The space of time wherein the whole mass of blood ordinarily circulates, is variously determined; some state it thus: Supposing the heart to make two thousand pulses in an hour, and that at every pulse there is expelled an ounce of blood; as the whole mass of blood is not ordinarily computed to exceed twenty-four pounds, it must be circulated seven or eight times over in the space of an hour. The circulation of the blood is generally said to have been first discovered in England, in the year 1628, by Dr. Harvey, an ingenious and learned physician; though there are others who contend for the glory of this most important discovery. The circulation of the blood was however, altogether unknown to the ancients.

CIRCULATION of the Sap of Vegetables is a natural motion of the nutritious juice of plants from the root to the extreme parts, and thence back again to the root. That there is a circulation in the bodies of vegetables seems to be evinced by the experiments of modern naturalists and gardeners, by means of certain vessels analogous to the veins and arteries in animals.

CIRCULATION, in chemistry, is an operation whereby the same vapour, raised by fire, falls back, to be returned and distilled several times, and thus reduced into its most subtle parts.

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CIRCULUS, in chemistry, an iron instrument in form of a ring, which being heated red hot, and applied to the necks of retorts and other glass vessels till they grow hot, a few drops of cold water thrown upon them, or a cold blast, will make the necks fly regularly and evenly off.

Another method of doing this, is to tie a thread, first dipt in oil of turpentine, round the place where you would have it break; and then setting fire to the thread, and afterwards sprinkling the place with cold water, the glass will crack exactly where the thread was tied.

CIRCUMAGENTES MUSCULI, or **OBLIQUI MUSCULI**, in anatomy, are certain oblique muscles of the eyes, so called from helping to wind and turn the eyes about.

CIRCUMAMBIENT, an appellation given to a thing that surrounds another; chiefly used in speaking of the air. See **AIR**.

CIRCUMCISION, the act of cutting off the prepuce; a ceremony in the Jewish and Mahometan religions, wherein they cut off the fore-skin of their males, who are to profess the one or the other law.

CIRCUMCISION, the name of a feast, celebrated on the first of January, in commemoration of the circumcision of our Saviour.

CIRCUMFERENCE, in a general sense, the line or lines bounding a plane figure. However, it is generally used in a more limited sense, for the curve line which bounds a circle, and otherwise called a periphery; the boundary of a right-line figure being expressed by the term perimeter.

Any part of the circumference is called an arch, and a right line drawn from one extreme of the arch to the other, is called a chord.

The circumference of every circle is supposed to be divided into 360 degrees. The angle at the circumference of a circle is double that at the center. See **ANGLE**.

For the ratio of the circumference of a circle to its radius. See **CIRCLE**.

CIRCUMFERENTOR, an instrument used by surveyors for taking angles.

CIRCUMFLEX, in grammar, one of the accents. See **ACCENT**.

CIRCUMGYRATION, the whirling motion of any body round a center; such is that of the planets round the sun.

CIRCUMLOCUTION, a paraphrastic method of expressing one's thoughts,

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or saying in many words, what might have been expressed in few.

CIRCUMLOCUTION, in oratory, the avoiding of something disagreeable, or inconvenient to be expressed in direct terms, by imitating the sense thereof in a kind of paraphrase, so conceived as to soften and break the force thereof.

CIRCUM-POLAR STARS, those stars, which by reason of their vicinity to the pole, move round it without setting.

CIRCUMSCRIBED, in geometry, is said of a figure which is drawn round another figure, so that all its sides or planes touch the inscribed figure.

CIRCUMSCRIBED HYPERBOLA, one of Sir Isaac Newton's hyperbolas of the second order, that cuts its asymptotes, and contains the parts cut off within its own space.

CIRCUMSCRIBING in geometry, denotes the describing a polygonous figure about a circle, in such a manner, that all its sides shall be tangents to the circumference.

Sometimes the term is used for the describing a circle about a polygon, so that each side is a chord; but in this case it is more usual to say the polygon is inscribed, than the circle is circumscribed.

CIRCUMSTANCE, a particularity not essential to any action.

Some circumstances are reckoned purely physical, not connecting any moral good or evil with any action; such as killing a man with the right or left hand, &c. Others are accounted properly moral, because they do really influence our actions, and render them more good or evil than they would have been without such circumstances.

The writers of ethics sum up all the circumstances of the actions of men in this one verse:

Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando.

CIRCUMVALLATION, or *Line of CIRCUMVALLATION*, in the art of war, a trench bordered with a parapet, thrown up quite round the besiegers camp, by way of security against any army that may attempt to relieve the place, as well as to prevent desertion.

CIRCUMVOLUTION, in architecture, the torus of the spiral line of the Ionic volute.

CIRCUS, in antiquity, a great building of a round or oval figure, erected by the ancients, to exhibit shews to the people. The Roman circus was a large, oblong edifice, arched at one end, encompassed

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passed with porticoes, and furnished with two rows of seats. In the middle was a kind of foot-bank, or eminence, with obelisks, statues, and posts at each end. This served them for the courses of their bigæ and quadrigæ. Those that have measured the circus say, that it was 2187 feet long, and 960 broad; so that it was the greatest building in Rome: some say it would contain 150,000 people, others 260,000 or 300,000.

CIRRI, among botanists, fine strings of thread like filaments, by which some plants fasten themselves to walls, trees, &c. such are those of ivy.

CIRRI, in ichthyology, certain oblong and soft appendages, not unlike little worms, hanging from the under jaws or mouths of some fishes.

CIRSOCELE, or **HERNIA VARI-COSA**, in surgery, a preternatural distension or divarication of the spermatic veins in the process of the peritonæum immediately above the testicle, and sometimes higher up in the scrotum, or even in the groin, inasmuch that they resemble the intestines of a bird, and equal the size of a goose quill, with varicose nodes, by which means the testicle appears much bigger, and hangs down lower than it should do.

CISLEU, in Hebrew chronology, the ninth month of their ecclesiastical, and the third of the civil year, answering nearly to our November.

CISSOID, in the higher geometry, an algebraic curve, first invented by Diocles, an ancient Greek geometrician, whence it is peculiarly called the Cissoid of Diocles: its chief use is for finding two mean proportionals between two given right lines; but Sir Isaac Newton, in his *Enumeratio linearum tertii Ordinis*, reckons it amongst one of the defective hyperbolæ, being, according to him, the forty-second species.

CISTERN, a subterraneous reservoir of rain water; or a vessel serving as a receptacle for rain or other water for the necessary uses of a family.

CISTUS, in botany, a genus of plants. This plant is of an inebriating quality; for which reason, in many places in Saxony, they boil it in their beer. They lay it also among clothes, to expel moths.

Dwarf-CISTUS, in botany, the same with the helianthemum, or small sun-flower.

CITADEL, a place fortified with four, five, or six bastions, built on a con-

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venient ground near a city, that it may command it. The city therefore is not fortified on the part opposite to the citadel, though the citadel is against the city. The best form for a citadel is a pentagon, a square being too weak, and a hexagon too large.

CITATION, in ecclesiastical courts, is the same with summons in civil courts. A person is not to be cited out of the diocese where he lives, unless it be by the archbishop in default of the ordinary, or where the ordinary is party to the suit, and in cases of appeal.

CITHARA, in antiquity, a musical instrument, the precise structure of which is not known. See **LYRE**.

CITIZEN, *Civis*, a native or inhabitant of a city, vested with the freedom and liberties of it.

CITREUM, or **CITRUS**, the citron-tree, in botany. See **CITRUS**.

CITRINUS, in natural history, a kind of spring crystal, of a fine yellow colour, which being set in rings, is often mistaken for a topaz.

CITRON-TREE, *Citrus*, in botany.

The fruit of this tree has much the same qualities with the lemon, from which it is distinguished by its firmness, greater bulk, brisker smell, and higher colour. We have essences, oils, confectiions, and waters obtained from it. See **CITRUS**.

CITRUL, *Citrullus*, makes a distinct genus of plants, according to some, otherwise called anguria; but Linnaeus comprehends it among the cucumbers; it is said to have the same medicinal qualities with the cucurbita or gourd.

CITY, *Civitas*, or *Urbs*, a large populous town, capital of some country, province, or district, and the see of a bishop. Town and city are frequently used in a synonymous sense; however, custom seems to have appropriated the term city to such towns as are, or formerly were, the sees of a bishop: hence it is that Edinburgh, Glasgow, &c. are still called cities, though they are no longer the sees of bishops, since the establishment of presbytery in Scotland.

CIVES, a species of onions, growing in tufts, and seldom exceeding six inches in height; they never produce any bulbs, and are much used in fallads in spring.

CIVET, a soft unctuous odoriferous substance, about the consistence of honey or butter; of a whitish, yellowish, or brownish colour, and sometimes blackish, brought from the Brazils, the coast of Guinea, and the East-Indies; found in certain

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certain bags situated in the lower part of the belly of an animal of the cat-kind. See ZIBETHICUM.

This substance has a very fragrant smell, so strong as, when undiluted, to be disagreeable; and an unctuous subacid taste. It is used chiefly in perfumes, rarely or never for medicinal purposes, though the singular effects which musk has been lately found to produce, may serve as an inducement to the trial.

CIVIC CROWN, *Corona Civica*, was a crown given by the ancient Romans to any soldier who had saved the life of a citizen in any engagement. This was accounted more honourable than any other crown, though composed of no better materials than oaken boughs. It was a particular honour conferred upon any that merited this crown, that when they came to any of the public shews, the whole company, as well senate as people, should signify their respect, by rising up, as soon as they saw them enter, and that they should take their seats upon these occasions among the senators; being also excused from all troublesome duties and services in their own persons, and procuring the same immunities for their father and grandfather.

CIVIL, *Civilis*, in a general sense, something that regards the policy, public good, or peace of the citizens, or subjects of the state; in which sense we say, civil government, civil law, civil right, civil war, &c.

CIVIL, in a legal sense, is also applied to the ordinary procedure in an action, in which sense it is opposed to criminal.

CIVIL-LAW is properly the peculiar law of each state, country, or city: but what we usually mean by the civil law, is a body of laws composed out of the best Roman and Grecian laws, compiled from the laws of nature and nations, and, for the most part, received and observed throughout all the Roman dominions for above 1200 years. The civil law is not received at this day in any one nation, without some addition or alteration: for sometimes the feudal law is mixed with it, or general or particular customs; and often ordinances and statutes cut off a great part of it.

CIVIL WAR, a war between people of the same state, or the citizens of the same city.

CIVIL YEAR, the legal year, or annual account of time, which every government appoints to be used within its

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own dominions, in contradistinction to the natural year, which is measured exactly by the revolution of the heavenly bodies.

CIVILIAN, in general, something belonging to the civil law; but more especially the doctors and professors thereof are called civilians: of these we have a college or society in London, known by the name of Doctors-commons.

CLAIM, in law, a challenge of interest in any thing that is in possession of another, as claim by charter, descent, acquisition, &c. Claim is either verbal or by action, and is sometimes for lands, sometimes for goods and chattels. It may be made by the party himself, and likewise by his servant or deputy, but not by a mere stranger in his name. By the common law, claim is to be within a year and a day after the person is disfeized of land.

CLAIM of Liberty is a suit to the king in the court of Exchequer, to have liberties confirmed there by the attorney-general.

CLAIR-OBSCURE, **CHIARO-SCURO**, or **CLARO-OBSCURO**. See the article **CLARO-OBSCURO**.

CLAMP, among brickmakers, a pile of unburnt bricks built up for burning.

CLAMPS, in naval architecture, thick planks in a ship's side, which support the ends of the beams. See **BEAMS**.

CLAMPS, crooked plates of iron, forelocked upon the trunnions of the cannon, to keep them steady in their carriages at sea.

CLAMPS are likewise frequently used to fasten the masts or bowsprits of small vessels and boats.

CLAP, in medicine, the first stage of the venereal disease, more usually called a gonorrhoea. See **GORRHOEA**.

CLAP-BOARD, among coopers, any kind of board proper for making casks or other vessels of.

* **CLARENCE**, duke of, brother to Edward IV. was murdered in the Tower in 1473, aged 27 years.

CLARENCIEUX, the second king at arms, so called from the duke of Clarence, to whom it first belonged; for Lionel, third son to Edward III. having by his wife the honour of Clare, in the county of Thomond, was afterwards declared duke of Clarence; which dukedom afterwards escheating to Edward IV. he made this earl a king at arms. His office is to marshal and dispose of the funerals of all the lower nobility, as baronets,

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knights, esquires, on the south side of the Trent; whence he is sometimes called Surroy, or South-roy, in contradistinction to Norroy.

CLARET, a name given by the French to such of their red wines as are not of a deep or high colour. See **WINE**.

CLARICHORD, or **MANICHORD**, a musical instrument in the form of a spinnet.

It has forty-nine or fifty stops, and seventy strings, which bear on five bridges, the first whereof is the highest, the rest diminishing in proportion, but what distinguishes it most is, that the chords are covered with pieces of cloth, which render the sound sweeter, and deaden it so, that it cannot be heard at any considerable distance; whence it comes to be particularly in use among the nuns, who learn to play, and are unwilling to disturb the silence of the dormitory.

CLARIFICATION, in chemistry. See **DEPURATION**.

CLARION, a kind of trumpet, whose tube is narrower, and its tone acuter and shriller than that of the common trumpet.

CLARO-OBSCURO, or **CLAIR-OBSCURE**, in painting, the art of distributing to advantage the lights and shadows of a piece, both with regard to the easing of the eye, and the effect of the whole piece. Thus, when a painter gives his figure a strong relieve, loosens them from the ground, and sets them free from each other, by the management of lights and shadows, he is said to understand the *claro obscuro*, which makes one of the great divisions or branches of painting, the whole of a picture being resolvable into light and shadow.

CLARO OBSCURA, or **CHIARO-SCURO**, is also used to signify a design consisting only of two colours, most usually black and white, but sometimes black and yellow; or it is a design washed only with one colour, the shadows being of a dusky brown colour, and the lights heightened up with white. The word is also applied to two prints of two colours taken off at twice, whereof there are volumes in the cabinets of the curious in prints.

CLARY, in botany the English name of the *scalaria* of Tournefort, comprehended by Linnæus among the species of *salvia* or sage.

Wild **CLARY**, the same with the *horminum* of Tournefort, likewise accounted by Linnæus a species of *sage*.

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CLASPERS. See **CIRRI**.

CLASS, *classis*, an appellation given to the most general subdivisions of any thing; thus animal is subdivided into the classes quadrupeds, birds, fishes, &c. which are again subdivided into series or orders; and these last into genera.

CLASS, is used in schools in a synonymous sense with form, for a number of boys all learning the same thing.

The distributing boys into classes, contributes not only to raise emulation among them, but is of great advantage to the master, who by this means, can teach double the number it would otherwise be possible for him to do.

CLASSIC, or **CLASSICAL**, an epithet chiefly applied to authors read in the classes at schools, and who are in great authority there. This term seems to owe its origin to Tullius Servius, who in order to make an estimate of every person's estate, divided the Roman people into six bands, which he called *classes*. The estate of the first class was not to be under two hundred pounds, and these by way of eminence were called *classici*, classics; hence authors of the first rank came to be called classics, all the rest being said to be *infra classicum*. By classical learning may be understood, such an intimacy with the best Greek and Latin writers, as not only enables the reader to see and admire the beauty of their several compositions, but to imitate their manner of writing, to transcribe their spirit and eloquence, and make their diction and their sentiment his own.

CLAVICLES, *clavicula*, in anatomy, are two bones situated transversely and a little obliquely opposite to each other, at the superior and anterior part of the thorax, between the scapula and sternum. The uses of the clavicles are, 1. To keep the arms from falling too forward upon the breast, and to facilitate several of the motions of the arm. 2. To serve for the place of origin for several muscles. 3. To defend the great subclavian vessels which run under them.

CLAVIS, a key, is sometimes used in English to denote an explanation of some obscure passages in any book or writing.

CLAVUS, in medicine and surgery, is used in several significations: 1. *Clavus hystericus* is a shooting pain in the head. 2. *Clavus oculorum*, according to Celsus, is a callous tubercle on the white of the eye, taking its denomination from its figure. 3. *Clavus* imports indurated tubercles of the uterus. 4. *Clavus* imports

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ports a chirurgical instrument of gold mentioned by amatus Lusitanus, designed to be introduced into an exulcerated palate, for the better articulation of the voice. 5. *Clavus* is a callus or corn on the foot: this arises from a too great compression of the cutis, which by this means hardens and forms itself into a knot. The cure is by softening them, and then pulling them out. The pulp of a lemon laid to a corn, and bound on all night, often softens it so by the morning, that it may easily be taken off.

CLAW, among zoologists, the sharp-pointed nails with which the feet of certain quadrupeds and birds are furnished.

CLAY, *Argilla*, in natural history, a genus of earths, the characters of which are these: they are firmly coherent, weighty, and compact; stiff, viscid, and ductile to a great degree, whilst moist; smooth to the touch, not easily breaking between the fingers, nor readily diffusible in water, and when mixed, not readily subsiding from it. Of this genus authors enumerate a great many species, some white some brown, grey, blue, yellow, green, red, black, &c. Besides the use of clay for making potter's ware, it is a considerable improver of light and sandy grounds, which unless they be clayed, will bear nothing but rye, with whatever other composites they be manured; but once clayed, they will produce oats, barley, pease, &c. In Yorkshire, they lay an hundred load upon an acre of ground, which will keep the soil in heart upwards of forty years: indeed, the first year after being clayed, it bears rank, ill-coloured, and broad-grained barley; but afterwards a plump round corn, like wheat.

CLAY-LANDS, those abounding with clay, whether black, blue, yellow, white, &c. of which the black and the yellow are the best for corn. All clay-soils are apt to chill the plants growing on them in moist seasons, as they retain too much water: in dry seasons, on the contrary, they turn hard and choke the plants. Their natural produce is weeds, goose-grass, large daisies, thistles, docks, poppies, &c. Some clay-soils will bear clover and rye-grass: and if well manured, will produce the best grain: they hold manure the best of all lands, and the most proper for them are horse-dung, pigeon's-dung, some kinds of marle, folding of sheep, malt-dust, ashes, chalk, lime, foot, &c.

CLEAVERS, *Aparine*, in botany, &c. See *APARINE*.

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CLEF, or **CLIFF**, in music, a mark set at the beginning of the lines of a song, shewing the tone or key in which the piece is to begin; or it is a letter marked on any line which explains the rest. It is called clef, or key, because hereby we know the names of all the other lines, and consequently the quantity of every degree or interval: but because every note in the octave is also called a key, this letter marked is, for distinction sake, denominated the sign clef, and by this key is meant the principal note of a song, in which the melody closes.

CLEFTS, or **CRACKS** in the Heels, a disease incident to horses, that comes either by over hard labour, which occasions surfeits, or by giving them unwholesome meat, or by washing them when hot. For the cure, shave away the hair, and apply the oil of hempseed, or linseed; and be sure to keep them clean.

CLEMATIS, virgin's bower, in botany, a genus of plants.

* **CLEOPATRA**, queen of Egypt, was the daughter of Ptolemy Auletes. She obtained the love of Julius Cæsar, by whom she had a son, named Cæsarion. After the death of that prince, Mark Anthony marching against the Parthians, in the fortieth year before the christian æra, ordered Cleopatra to meet him in Cilicia, to answer the accusations formed against her, in relation to her having given succours to Brutus. That princess, who was not only a great beauty, but also extremely artful, and spoke several languages, resolved to inspire Anthony with a passion for her. She embarked on the river Cydnus, in a vessel with a gilt stern; the sails of which were of purple, and the oars silver; which kept time with a concert of music; while she herself lay under a pavilion of cloth of gold, dressed in a magnificent habit. The very evening in which she arrived, she gave an elegant repast to Anthony, who became so distractedly in love, that he married her, notwithstanding his former marriage to Octavia, the sister of Augustus. After Anthony's defeat and death, Cleopatra, unable to captivate the affections of Augustus, and fearing she should be carried to Rome, to adorn his triumph, caused herself to be stung by an asp, and died of the wound, in the thirty-ninth year of her age. Augustus ordered her a magnificent funeral, and her body, as she desired, was buried in the same tomb with that

that of Anthony. She reigned twenty-two years.

She was a woman of great parts, notwithstanding her vices, and spoke many languages with the utmost facility; for she could converse with the Ethiopians, Troglodites, Jews, Arabians, Syrians, Medes, and Persians, without an interpreter; and always answered them in their own languages. In her death ended the reign of the family of Ptolemies in Egypt, after it had subsisted from the death of Alexander, two hundred and ninety-four years; for after this, Egypt was reduced to a Roman province, and so remained for six hundred and seventy years, till it was taken from them by the Saracens.

CLEPSYDRA, an instrument or machine serving to measure time by the fall of a certain quantity of water. There have likewise been clepsydræ made with mercury. The Egyptians, by this machine, measured the course of the sun. Tycho Brahe, in our days, made use of it to measure the motion of the stars, &c. and Dudley used the same contrivance in making all his maritime observations. The use of clepsydræ is very ancient: they were invented in Egypt under the Ptolemies; as were also sun-dials. Their use was chiefly in the winter; the sun-dials served in the summer. They had two great defects; the one, that the water ran out with a greater or less facility, as the air was more or less dense; the other, that the water ran more readily at the beginning, than towards the conclusion.

M. Amontons has invented a clepsydra free from both these inconveniences, and which has these three grand advantages; of serving the ordinary purpose of clocks; of serving in navigation for the discovery of the longitude; and of measuring the motion of the arteries.

CLEPSYDRA is also used for an hour-glass of sand, and likewise for a water-clock. See **Hour-Glass** and **Water-Clock**.

CLERGY, a general name given to the body of ecclesiastics of the Christian church, in contradistinction to the laity. The distinction of Christians into clergy and laity, was derived from the Jewish church, and adopted into the Christian by the apostles themselves: whenever any number of converts were made, as soon as they were capable of being formed into a congregation or church, a bishop or presbyter, with a deacon, were ordained to minister to them.

The clergy of the church of Rome are distinguished into regular and secular: the regular clergy consists of those monks or religious, who have taken upon them holy orders of the priesthood, in their respective monasteries. The secular clergy are those which are not of any religious order, and have the care and direction of parishes. The protestant clergy are all seculars.

Benefit of CLERGY is an ancient privilege, whereby one in orders claimed to be delivered to his ordinary, to purge himself of felony: this purgation was to be by his own oath, affirming his innocence, and the oath of twelve purgators, as to their belief of it, before a jury of twelve clerks: if the clerk failed in his purgation, he was deprived of his character, whereby he became a mere layman; or he was to be kept in prison till a pardon was obtained; but if he purged himself, he was set at liberty. This was formerly admitted, even in cases of murder; but the ancient course of the law is much altered upon this head. By the statutes of 18 Eliz. cap. vii. clerks are no more committed to their ordinary to be purged; but every man, to whom the benefit of clergy is granted, though not in orders, is put to read at the bar, after he is found guilty and convicted of such felony, and so burnt on the hand, and set free for the first time, if the ordinary or deputy standing by shall say, *legit ut clericus*, otherwise he shall suffer death.

CLERK, originally used to denote a learned man, or man of letters; whence the term became appropriated to churchmen, who were from thence called clerks or clergymen: the nobility and gentry being usually bred up to the exercise of arms, and none left but the ecclesiastics to cultivate the sciences.

CLERK, such as by their course of life exercise their pens in any court or office, of which there are various kinds.

CLEW-LINES, ropes fastened to the clews or lower corners of the square sails: their uses are to draw each clew up to the yard, for the more easily furling or reefing the sails.

CLIENT is now used for a party in a law-suit, who has turned over his cause into the hands of a counsellor or solicitor.

CLIMACTERIC, *Annus Climactericus*, among physicians and natural historians, a critical year in a person's life, in which he is supposed to stand in great danger of death. According to some, every seventh year is a climacteric; but others allow only

ly those years produced by multiplying 7, by the odd number 3, 5, 7, 9, to be climacterical. These years, they say, bring with them some remarkable change with respect to health, life, or fortune; the grand climacteric is the sixty-third year; but some, making two, add to this the eighty-first: the other remarkable climacterics, are the seventh, twenty-first, thirty-fifth, forty-ninth, and fifty-sixth. The credit of climacteric years can only be supported by the doctrine of numbers introduced by Pythagoras; though many eminent men, both among the ancients and moderns, appear to have had great faith in it.

CLIMATE, in geography, a space upon the surface of the terrestrial globe, contained between two parallels, and so far distant from each other, that the longest day in one differs half an hour from the longest day in the other parallel.

The moderns reckon the different climates by the increase of half an hour in the length of the longest day, beginning at the equator; and going on till they come to the polar circle towards the pole: they then count the climates by the increase of a whole natural day, in the length of the longest day, till they come to a parallel, under which the day is of the length of fifteen natural days, or half a month; from this parallel they proceed to reckon the climates by the increase of half or whole months, in the artificial day, till they come to the pole itself, under which the length of the day is six months. Those between the equator and the polar circles are called hour climates; and those between the polar circles and the poles, month climates.

Vulgarly the term climate is bestowed on any country or region differing from one another, either in respect of the seasons, the quality of the soil, or even the manners of the inhabitants, without any regard to the length of the longest day.

CLIMAX, or **GRADATION**, in rhetoric, a figure wherein the word or expression which ends the first member of a period begins the second, and so on; so that every member will make a distinct sentence, taking its rise from the next foregoing, till the argument and period be beautifully finished: as in the following gradation of Dr. Tillotson. "After we have practised good actions a while, they become easy; and when they are easy, we begin to take pleasure in them; and when they please us, we do them frequently; and by fre-

quency of acts, a thing grows into a habit; and confirmed habit is a second kind of nature; and so far as any thing is natural, so far it is necessary, and we can hardly do otherwise; nay, we do it many times, when we do not think of it."

CLINOIDES, in anatomy, four small processes in the inside of the os sphenoides, forming a cavity called sella turcica, in the middle of that bone, in which lies the glandula pituitaria.

CLITORIS, or as some call it, *Membra Muliebris*, in anatomy, a part of the external female pudenda, situated at the angle which the nymphæ form with each other. Its common state is to be almost entirely buried under the skin or prepuce. Its general size is that of the uvula, or scarce so much: its shape much resembles the shape of that part, yet it sometimes is found of an extraordinary bigness, as large as the penis: but even in this case, it has no urethra. It has a glans or apex as the penis has, but this is not perforated. It is usually covered with a fœtid matter, like that of the glans of a penis. The prepuce covering the glans of the clitoris, is formed of the cutis of the pudendum, and furnished with nervous papillæ: hence it is of exquisite sensibility to the touch. It has also a ligament, by which it is connected to the ossa pubis, in the same manner as the penis is in men.

CLOACA, in comparative anatomy, the canal in birds, through which the egg descends from the ovary in its exit.

CLOCK, a kind of movement, or machine, serving to measure and strike time. The usual chronometers are watches and clocks: the former in strictness are such as shew the parts of time; the latter such as publish it by striking. The invention of clocks with wheels is referred to Pacificus, archdeacon of Verona, who lived in the time of Lotharies, son of Louis the Debonnair; on the credit of an epitaph quoted by Ughelli, and borrowed by him from Panvinus. They were at first called nocturnal dials, to distinguish them from sundials, which shewed the hour by the sun's shadow. Others ascribe the invention to Boethius, about the year 510. But be that as it will, it is certain, the art of making clocks, such as are now in use, was either first invented, or at least retrieved, in Germany, about 200 years ago.

The invention of pendulum clocks is owing to the happy industry of the last age: the honour of it is disputed between Huygens and Galileo.

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But be the inventor who he will, it is certain the invention never flourished till it came into *Huygens's* hands, who insists on it, that if ever *Galileo* thought of such a thing, he never brought it to any degree of perfection. The first pendulum-clock made in England, was in the year 1622, by Mr. *Fromantil*, a Dutchman.

CLOGS, a kind of wooden pattens without rings. See **PATTEN**. Clogs is also used for pieces of wood fastened about the necks or legs of beasts, to prevent their running away.

CLOISTER, *Clastrum*, an habitation surrounded with walls, and inhabited by religious. In a more general sense it is used for a monastery of religious of either sex. In the first sense, it is the principal part of a regular monastery, being a square surrounded with walls or buildings. It is commonly placed between the church, the chapter-house, and refectory, underneath the dormitory.

CLOSE-HAULED, the sea-language, a certain situation of disposing the sails of a ship to make a progress in the nearest direction possible to the point from which the wind bloweth, or to the direction of the wind. A ship commonly sails at this time within about six points of it; but sloops and other small vessels will frequently go almost a point higher, and all vessels are supposed when close hauled to make nearly a point of lee-way, even when they have the advantage of a good sailing breeze and smooth water: lee-way always increases in proportion to the rising of the wind and sea. Lee-way is known to be an angle included between a ship's real and apparent progress; as, a ship having the wind at north and being close hauled, she will stem *E N E* one day, and *W N W* the other; but as she will make a point of lee-way, her course will be only *E* by *N* one way, and *W* by *N* the other.

CLOSE-QUARTERS, in naval affairs, certain strong thick fences of wood stretching across a merchant-ship in several places; they are used as a place of retreat when a ship is boarded by her enemy, and are therefore fitted with several small musket-holes, from which the ship's crew can defend themselves and annoy the enemy: they are likewise fortified with several small caissons called powder-chests, which are fixed upon the deck filled with powder, and can be fired at any time from the close-quarters upon the boarders. See **BOARDING**.

CLOSET, in building, a very small room, generally without any chimney: it

is esteemed one great improvement of our modern architects.

CLOTH, in commerce, a manufacture made of wool wove on the loom. The term is applicable also to other manufactures made of hemp, flax, &c. but in a more particular sense it implies the web or tissue of woollen threads interwoven, some whereof, called the warp, are extended in length from one end of the piece to the other; the rest, called the woof, disposed across the first, or breath-wise of the piece. Cloths are of divers qualities, fine or coarse. The goodness of cloth, according to some, consists in the following particulars. 1. That the wool be of good quality, and well dressed. 2. It must be equally spun, carefully observing that the thread of the warp be finer and better twisted than that of the woof. 3. The cloth must be well wrought and beaten on the loom, so as to be every where equally compact. 4. The wool must not be finer at one end of the piece than in the rest. 5. The list must be sufficiently strong, of the same length with the stuff, and must consist of good wool, hair, or ostrich-feathers, or, what is still better, of Danish dog's hair. 6. The cloth must be free from knots, and other imperfections. 7. It must be well scoured with fuller's-earth, well fulled with the best white soap, and afterwards washed in clear water. 8. The hair or nap must be well drawn out with the teazle, without being too much opened. 9. It must be shorn close without making it threadbare. 10. It must be well dyed. 11. It must not be tentered stretched to force it to its just dimensions. 12. It must be pressed cold, not hot-pressed, the latter being very injurious to woollen cloth.

CLOTHS, in painting are pieces of canvas prepared by proper primings for the use of painters, and sold at the colour-shops.

Whoever would have good cloths, free entirely from the inconveniences, to which they are liable at the colour shops, must direct the preparation of them themselves; and they may produce them in perfection by the following means.

"Let the cloths be first well soaked with drying oil laid on hot, and when nearly dry, let two or three coats of drying oil and red oker, mixed as thick as can be worked, be spread over it: then, the last being dry, let the cloth be brushed over with hot drying oil, as long as it appears to sink in: and lastly, let it be covered with a coat of white lead and oil, rendered grey, or of any other colour desired, by admix-
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ture of the proper pigments. This last coat may be polished to a due degree by rubbing with a pumice stone, or by glazing it with a glass polisher used for linen, and called a callender stone."

CLOTHO, or **CLOTHOS**, in fabulous history, one of the three Paræ, or Destinies, who spin the thread of life. She is represented holding the spindle, dressed in a long gown of several colours, and with a crown on her head, set with seven stars.

CLOUD, a collection of vapours in the atmosphere. That the clouds are produced in the air, from almost water alone, there is scarce any one that doubts. But water, every where equally disposed, is transparent. Clouds, therefore, are collected from what is beginning to be water; but the parts of which, in the mean time, are circumsolved among one another with an unequal motion, neither resting nor moving equally. If the water that is floating about in the air, mounts higher and higher, its particles at length arrive in places so far above the earth, that they are not any longer much united together, but receding from each other, they do not then constitute water, but only the elements of it. But when these elements of water come to descend again from those upper regions, and are contracted into smaller spaces, where they associate together, and become a kind of water, they then form clouds. The higher, therefore, the water ascends in the air, the serener and drier the weather will be, and the freer from clouds; and the contrary. But water is carried up to a very considerable height in the air; for in Carniola, in the neighbourhood of Venice, there are mountains thousand two hundred and seventy-four geometrical feet high, on the tops of which there are indications of moisture: and on the highest tops of these mountains nature presents to our view perpetual snows; a certain proof of the elevation of water to such heights. Nay, over the mountain Teneriff, the highest in Europe, there constantly, about noon, hang fogs, or little white clouds, which are daily resolved into water, which flows in such plenty down the mountain, that it supplies the place of showers, and waters the whole island, without rain. We are certain therefore that water ascends to such a height. However on the tops of the highest mountains there are rarely observed any clouds, but, on the contrary, to a spectator placed there, they appear below him towards the plain.

CLOVE-TREE, in botany. See **CARYOPHYLLUS**.

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CLOVE, a term used in weights and wool. Seven pounds make a clove.

In Essex, eight pounds of cheese and butter go to the clove.

CLOVE-JULY-FLOWERS. See **CARYOPHYLLUS**.

CLOVER, a species of the trifolium. See **TRIFOLIUM**.

Clover is greatly cultivated in England for feeding of cattle, and is esteemed very profitable, because the great quantity of cattle which this grass will maintain, very much enriches all clayey lands, and prepares them for corn in two or three years, which is the length of time that this crop will continue good. In the choice of this seed, that which is of a bright yellowish colour, a little inclining to brown, should be preferred: but the black rejected as good for little.

Ten pounds of this seed will be sufficient for an acre of ground; for if the plants do not come up pretty thick, it will not be worth standing. The land in which this is sown should be well ploughed and harrowed very fine, otherwise the seeds will be buried too deep, and thereby lost.

The best time to sow it is about the beginning of August, at which season the autumnal rains will bring up the plants in a short time; whereas, when the seeds are sown in the spring, if it be done very early, they are many times burst with wet and cold; and if it be done late, they are in danger of miscarrying from drought: whereas in autumn, when the ground has been warmed by the summer's heat, the rains then falling greatly promote the vegetation of seeds and plants.

The seeds should be harrowed in with bushes; for, if it be done with a common harrow, they will be buried too deep.

Most people have recommended the sowing of this seed with several sorts of corn: but if it be seasoned, as before directed, it will be much better if sown alone, for the corn prevents the growth of the plants until it is reaped and taken off the ground, so that one whole season is lost; and many times, if there be a great crop of corn upon the ground, it spoils the clover, so that it is hardly worth standing; whereas, in the way before directed, the plants will have good roots before winter; and in the spring will come on much faster than that which was sown the spring before under corn.

About the middle of May this grass will be fit to cut, and there should be great care taken in making it; for it will require a great deal more labour and time to dry than common grass, and will shrink into

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less compass; but if it be not too rank, it will make extraordinary rich food for cattle. The time for cutting it is when it begins to flower; for if it stands much longer, the lower part of the stem will begin to dry, whereby it will make a less quantity of hay, and that not so well flavoured.

Some people cut three crops in one year of this grass; but the best way is to cut it once in the spring, and feed it the remaining part of the year, whereby the land will be enriched, and the plants will grow much stronger.

One acre of this grass will feed as many cattle as four or five acres of common grass: but great care should be taken of the cattle when they are first put into it, lest it burst them. To prevent which, some turn them in for a few hours only at first, and so stint them as to quantity; and this by degrees, letting them at first be only one hour in the middle of the day, when there is no moisture upon the grass, and so every day suffering them to remain a longer time, until they are fully seasoned to it: but great care should be had never to turn them into this food in wet weather; or, if they have been for some time accustomed to this food, it will be proper to turn them out at night in wet weather, and let them have hay, which will prevent the ill consequences of this food: but there are some who give straw to their cattle, when they are feeding upon this grass, to prevent the ill effects of it; which must not be given them in the field, because they will not eat it where there is plenty of better food. There are others who sow rye grass amongst their clover, which they let grow together, in order to prevent the ill consequences of the cattle feeding wholly on clover: but this is not a commendable way, because the rye grass will greatly injure the clover in its growth.

Where the seeds are designed to be sowed, the first crop in the spring should be permitted to stand until the seeds are ripe, which may be known by the stalks and heads changing to a brown colour; then it should be cut in a dry time: and when it is well dried, it may be housed until winter, when the seeds should be threshed out; but if the seeds are wanted for immediate sowing, it may be threshed out before it is either housed or stocked: but then it must be well dried, otherwise the seeds will not quit their husks.

It has been a great complaint among the farmers, that they could not thresh out these seeds without great labour and dif-

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ficulty; which must be chiefly owing to their cutting the spring crop when it begins to flower, and to leave the second crop for seed, which ripens so late in autumn, that there is not heat enough to dry the husks sufficiently; whereby they are tough, and the seed rendered difficult to get out: which may entirely be remedied by leaving the first crop for seed, as hath been directed.

When the cattle are fed with this hay, the best way is to put it in racks, otherwise they will tread a great quantity of it down with their feet. This feed is much better for most other cattle than milk cows, so that these should rarely have any of it, lest it prove hurtful to them; though when it is dry, it is not near so injurious to any sort of cattle, as when green.

CLYSTER, a liquid remedy to be injected chiefly at the anus into the larger intestines. It is usually administered by the bladder of a hog, sheep, or ox, perforated at each end, having at one of the apertures an ivory pipe fastened with pack-thread. Clysters are prepared of different ingredients, according to the different intentions proposed, whether to soften the indurated faeces, correct the acrid, acid, and saline recrements, evacuate the contents of the large intestines, corroborate the languid fibres of the intestines, and augment their impaired peristaltic motion; to mitigate the spasms of the intestinal coats, and relax their constricted fibres; to cause a revulsion downwards in lethargic disorders, apoplexies, frenzies, and other disorders of the head; to promote labour, whether the fetus be living or dead; and to expel the secundines where they are preternaturally detained. Clysters are sometimes used to nourish and support a patient who can swallow little or no aliment, by reason of some impediment in the organs of deglutition; in which cases they may be made of broth, milk, ale, and decoctions of barley and oats with wine. The English introduced a new kind of clyster, made of the smoke of tobacco, which has been used by several other nations, and appears to be of considerable efficacy when other clysters prove ineffectual, and particularly in the iliac passion, and in the hernia incarcerata, though it may likewise be used in an obstinate constipation or obstruction of the bowels, &c. See Heister's Surgery, and Graffius's and Sawzonius's Dissertations upon the subject.

* CLYTEMNESTRA, in fabulous history, daughter of Leda, whom she brought

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brought forth in an egg, which contained both Clytemnestra and Castor. She married Agamemnon; but while he was at the siege of Troy, she had an intrigue with Ægisthus, whom she engaged to murder Agamemnon, at his return. Her son Orestes, however, revenged the death of his father by killing Ægisthus, with his mother Clytemnestra; but was afterwards haunted by the Furies as long as he lived.

* **CLYTE**, in fabulous history, daughter of Orcamus, king of Babylon, who, jealous of the happiness of her sister Leucothea, who had been debauched by Apollo, acquainted her father with the amour; but Apollo still slighting her, she pined away, continually looking on the sun, till she became transformed into a sun-flower.

COACH, a commodious vehicle for travelling, so well known as to need no description.

* Coaches were first used in England in 1515; an act for licensing hackney coaches in London passed in 1693. The number of hackney coaches was increased to one thousand in 1770.

COACH, or **COUCH**, in naval affairs, a cabin or large apartment near the stern of a large ship of war, the floor of which is the same with the quarter-deck; it is always the habitation of the captain.

COADJUTOR is properly used for a prelate joined to another to assist him in the discharge of his function, and even in virtue thereof to succeed him.

COAGULATION, a certain change in the state of any liquor, by means of which, instead of retaining its fluidity, it becomes more or less consistent, according to the degree of coagulation.

COAGULUM. See **RENNET**.

COAL, a black, sulphureous, inflammable matter, dug out of the earth, and serving for fuel in many countries.

Char **COAL**. See **CHARCOAL**.

COASTING, in navigation, the act of making a progress along the sea-coast of any land: the principal articles relating to this part of navigation are, observing the motion of the tide, sounding, and keeping a good look-out.

COAT, or **COAT of Arms**, in heraldry, a habit worn by the ancient knights over their arms both in war and tournaments, and still borne by heralds at arms. It was a kind of sur-coat, reaching as low as the navel, open at the sides with short sleeves, sometimes furred with ermine and hair, upon which were applied the armo-

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ries of the knights embroidered in gold and silver, and enamelled with beaten tin, coloured black, green, red, and blue; whence the rule never to apply colour on colour, nor metal on metal. The coat of arms were frequently open, and diversified with bands and fillets of several colours, alternately placed, as we still see cloths scarleted, watered, &c. Hence they were called devises, as being divided and composed of several pieces sewed together; whence the words false, pale, chevron, bend, cross, saltier, lozengé, &c. which have since become honourable pieces or ordinaries of the shield. See **CROSS**, **BEND**, **CHEVRON**, &c.

Coat of arms and banners were never allowed to be worn by any but knights and ancient nobles.

COAT, in naval affairs, a piece of tarred canvas nailed round that part of the masts or bowsprit where they rise out of the ship. It is used to prevent the water from running down into the ship's hold.

COATING, in chemistry, the covering a retort, or other vessel, with a composition called lute, to prevent the action of the fire from melting the glass. See **LUTE**.

COBALT, in natural history, a singular species of arsenical ore. In its purer states it is considerably compact and heavy, and not unfrequently of a semi-metallic appearance. Its texture is always fine, sometimes granulated, or composed of minute grains ranged into small stræ; sometimes smooth and even, without any distinguishable grains. Its colour is sometimes a pale iron-grey, sometimes a darker bluish or blackish grey. From variations in the appearance of the mineral itself, or from its different admixtures, some of the mineralogists have divided it into several distinct species, the principal of which are the following. 1. Dark grey cobalt. 2. Bright pale grey or ash-coloured cobalt. 3. Vitreous cobalt. 4. Crystalliform cobalt. 5. Specular cobalt. 6. Earthy cobalt. 7. Flowers of cobalt, of a loose radiated structure and generally not so heavy as the foregoing ores.

The cobalt mines of Schneeberg are said to be two or three hundred fathoms deep; and the cobalt lodged at great depths to be of a better quality than that which is near the surface. The Schneeberg-hill, according to the ancient chronicles of Saxony, yielded at first only an iron ore; which on sinking deeper, about the beginning of the fourteenth century, was succeeded by

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a very rich ore of silver; this also, being at length exhausted, gave place to cobalt, some pieces of which are still found to participate of silver, and even of gold.

COBWEB, in physiology, the fine network which spiders spin out of their own bowels to catch their prey.

COCCOGNIDIUM, or **GRANUM CNIDIUM**, is the berry of a shrub, growing wild in Germany in moist shady woods, called by an Arabic name *Messe-reon*, and from its leaves bearing some resemblance to those of the bay and of the olive-trees, *Laureola* and *Cbamelæa*. The berries are first green, afterwards red, and when ripe of a brown colour. They are used by the dyers in Germany; but unknown among the artists of our country.

COCCULUS INDICUS, in natural history, the berry of an oriental plant, supposed to be a species of *Solanum*, and called, by Ray, *Solanum racemosum Indicum*, &c. or Indian tree nightshade, producing the fruit in clusters like grapes. The berries are brought to us from Alexandria and other parts of the Levant. They are partly about the size of bay-berries, and partly of that of chich-peas; roundish, but hollowed in a little towards the stalk, and approaching to a kidney shape, rough on the outside, and of a grey-brownish or blackish colour; the fresher they are, the heavier, the older, the drier and lighter. The berry is principally employed in ointments for destroying cutaneous insects, and in fishing. For this last purpose, a mixture of the powdered cocculus, with rye-meal, old cheese, spirit of wine, and other substances, is formed into small pellets or pills, which are used as a bait, or only thrown by themselves into waters stocked with fish: the fishes by swallowing the pills, are stupified and benumbed, arise to the surface, and may be easily caught by the hands.

COCCYX, or **COCCYGIS OS**, in anatomy, a bone situated at the extremity of the os sacrum. See **OSTEOLOGY**.

COCHINEAL, in natural history, a small, irregular, roundish insect, internally of a red colour. It is brought chiefly from New Spain, and there collected from a plant, which is now common in the botanic gardens of Europe, called *opuntia*, or prickly pear-tree. It was formerly supposed to be the entire fruit or berry of the tree, wrinkled and shrivelled by drying; when the pear itself became known, cochineal was supposed to be its seeds; but it differs greatly from these also, as well as

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from the entire pear. It is now known with certainty to be an animal substance, and a particular species of insect produced upon the tree.

This insect, like many others, goes through a variety of forms; though the rich red colour, for which it is valued, it possesses only in the maggot state. On examining carefully several hundred weight of cochineal as brought to us, we have seen some grains in all the different states.

The *Scarabæus* deposits on the leaves of the opuntia, small eggs, from each of which comes forth a little insect, resembling a flea or tick; when this increases, it looks like a worm or caterpillar, with six small feet, scarcely to be seen, on the fore part of its body. It crawls among the leaves, and chooses such situations where it may be best secured from rain and other inclemencies of weather. After these have attained to their full growth, they contract themselves, and at the same time become redder and redder. A pellicle is formed all over them, and they adhere motionless, as if fixed with glue upon the leaves, which now look as if covered with fine red berries. This state continues about ten or twelve days, when the husk opens, and discovers a winged *scarabæus* again, which has very little of the deep red colour of the maggot or chrysalis. The *scarabæus* lays its eggs, and then succeed the same transformations as before.

Great care is taken in the preservation and curation of these valuable insects, in defending them from rain, cold, and heat, from being preyed on by birds, &c. in housing them at certain seasons, and in collecting and drying them for use. But,

Fresh cochineal loses in drying about two-thirds of its weight.

COCHLEA, the snail-shell, in zoology, a genus of univalve shell fish, of a spiral figure.

COCHLEA, in anatomy, the third part of the labyrinth of the ear. See **EAR**.

COCHLEA, the screw, in mathematics. See **SCREW**.

COCHLEARIA, scurvy grass, in botany, a low plant, with thick juicy leaves, which annually grows wild in several parts of England, particularly about the sea-coasts and salt-mathes, and flowers in May, or sooner.

COCHLEARIA Hortensis, garden, or Dutch scurvy-grass, with the radical leaves unevenly roundish, and those on the stalks oblong.

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oblong. It is commonly cultivated for the use of the shops in gardens; and does not appear like many other maritime plants, to change its qualities with the soil.

COCHLEARIA *Marina*, seu *Britannica*, English, or sea-scurvy-grass, with all the leaves alike; oblong, pointed, deeply and irregularly indented or situated.

COCK, *Gallus*, in zoology, the English name of the males of gallinaceous birds, but more especially used for the common game or dunghill-cock.

COCK'S COMB, in botany, a species of pedicularis, as well as a species of amaranth. See **PEDICULARIS** and **AMARANTH**.

COCKATOON. See **MACAO**.

COCKET, a seal belonging to the king's custom-house, or rather a scroll of parchment sealed and delivered by the officers of the customs to merchants, as a warrant that their merchandises are customed.

COCKLE, in the history of shell-fish, the English name of the *pectunculus*. See **PECTUNCULUS**.

COCOON, in natural history, the pod, or nest of the silk-worm.

COCOS, or **COCO**, a nut, the shell of which is much used by turners, carvers, &c. for divers works.

While the nuts are new, and the bark tender, they yield each about half a pint of clear cooling water, which in a little time becomes first a white soft pulp, and at length condenses, and assumes the taste of the nut. The tree yields fruit three times a year, and those sometimes as big as a man's head: but the cocos of the Antilles are not so large as those of the East-Indies. In the kingdom of Siam, the cocos-fruit dried and emptied of its pulp, serves as a measure both for things liquid and dry.

COD-FISH, in ichthyology, the largest of the genus of the *aselli*, called *asellus maximus* by authors, and sometimes *asellus varius*, *five striatus*.

CODE, *Codex*, a collection of the laws and constitutions of the Roman emperors, made by order of Justinian.

CODICIL, a writing, by way of supplement to a will, when any thing is omitted which the testator would have added; it is of the same nature with a will or testament, except that it is made without an executor; and one may leave bequeathed him but one will, though as many codicils as he pleases.

COECUM, in anatomy, the first of the three large intestines, called, from

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their size, *intestina crassa*. The *coecum* is situated at the right osilium, and resembles a bag, and has a vermiform appendage fixed to it.

COEFFICIENTS, in algebra, such numbers, or known quantities, as are put before letters or quantities, whether known or unknown, and into which they are supposed to be multiplied. Thus, in $3x$, ax , or bx ; 3 , a , and b , are the coefficients of x ; and in $6a$, $9b$; 6 , and 9 , are the coefficients of a and b .

COELESTIAL, any thing belonging to the heavens: thus we say, celestial observation, the celestial globe, &c.

Celestial observations, are those made by astronomers upon the phenomena of the heavenly bodies, with a suitable apparatus of astronomical instruments, to determine their places, motions, &c. The instruments chiefly made use of, in astronomical observations, are the astronomical gnomon, quadrant, micrometer, and telescope. See **GNOMON**, **QUADRANT**, &c.

COELESTIAL GLOBE. See **GLOBE**.

COELIAC ARTERY, in anatomy, that artery which issues from the aorta, just below the diaphragm.

The trunk of this artery is very short, and near its origin it sends off from the right side two small diaphragmatic branches, sometimes only one; and is afterwards distributed into right and left, communicating with other arteries of the same name, which come from the intercostal and mammary arteries.

COELIAC PASSION, in medicine, a kind of flux, or diarrhoea, wherein the aliments, either wholly changed, or only in part, pass off by stool. Dr. Friend says, that the most rational and successful method of treating the coeliac passion, is to administer such remedies as gently stimulate the intestinal tube, and deterge obstructed glands; for this purpose, purges administered in small quantities, and frequently repeated, and gentle vomits of ipecacuanha are recommended.

COELIC DIABETES, called also *coeliaca urinallis*, a disorder wherein the chyle passes off, along with, or instead of urine. See **DIABETES**.

COELIAC NEIN, in anatomy, that running through the *intestinum rectum* along with the coeliac artery.

* **COELUS**, heaven, in Pagan mythology, the son of Æther and Dies, or Air and Day: Hesiod says he married Terra, or the Earth, on whom he begat the Mountains, the Ocean, &c. but having at length imprisoned the Cyclops, who

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who were also his children, his wife, being offended, incited her son Saturn to revenge the injury done to his brothers; and, by her assistance, he bound and castrated Cælus, when the blood that flowed from the wound produced the three furies, the giants, and the wood-nymphs.

COENOBITE, in church history, one sort of monks in the primitive christian church, who were so called from living in common, in which they differed from the Anchorites, who retired from society.

COEQUALITY, among Christian divines, a term to denote the equality of the three persons in the Trinity.

CO-ETERNITY, among Christian divines, the eternal existence of two or more beings: it is chiefly used in speaking of the persons of the Trinity.

COEUR, in heraldry, a short line of partition in pale, in the center of the escutcheon, which extends but a little way, much short of the top and bottom, being met by other lines, which form an irregular partition of the escutcheon.

CO-EXISTENCE, the existence of two or more things at the same time.

COFFEE, in commerce, the berry of a tree growing naturally in Arabia, and was not known in Europe till 1650. It is now cultivated also in Persia, the East-Indies, and in America. It is raised likewise in botanic gardens in different parts of Europe, but not without shelter and artificial heat. Prince Eugene's noble garden at Vienna produced coffee more than sufficient for his own consumption. The tree is usually small, though sometimes it rises to the height of 20, 30, and even 40 feet: it is an evergreen, and at all seasons of the year is full loaded with flowers and fruit. The flower is highly odiferous, and resembles that of the jessamine; of which the coffee-tree is held a species. The Arabians name the tree *bun* or *bon*; whence perhaps the common expression of coffee beans: the dietetic infusion prepared from the seeds, they call *cahoueh*, or *coave*, whence coffee or cassie. The entire fruit somewhat resembles a cherry: containing under a pulpy skin, an oval kernel, which separates longitudinally into two parts, each covered with a thin shell, and marked with a furrow on the flat side, where they were joined. Three sorts of coffee are distinguished in trade; Arabian or Levant, East-Indian or Java, and West-Indian or Surinam coffee: the first is the smallest, and of a somewhat darker yellow colour than the

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other sorts; the second is the largest and of the palest yellow; the third, of a middling size, and in colour greenish. The peculiar flavour, for which coffee is admired, is communicated by roasting: common beans, peas, and other farinaceous substances, receive from that process a similar flavour, and have been sometimes used as succedanea to coffee, and fraudulently mixed, by the venders of that commodity, with such as is sold in powder. With regard to the medical qualities of coffee, the common infusions, or rather decoctions of it appear to be in general innocent; to be little disposed to produce the ill effects ascribed to them by some, and to have little claim to the extraordinary virtues for which they are recommended by others.

COFFER, a long square box, of firm timber, about three feet long, and one and a half broad, wherein tin-ore is broken to pieces in a stamping mill. See **TIN** and **MILL**.

COFFER, in fortification, a hollow lodgment athwart a dry moat, from six to seven feet deep, and from sixteen to eighteen broad; the upper part being made of pieces of timber, raised two feet above the level of that moat, which little elevation has hurdles, laden with earth for its covering, and serves as a parapet with embrasures.

COFFERER of the King's Household, a principal officer in the court, next under the comptroller, who, in the compting-house, and elsewhere at other times, has a special charge and oversight of the other officers of the house, for their good demeanour and charge in their offices, to all which he pays their wages.

COGGESHALL's Sliding Rule. See **SLIDING RULE**.

COGNATION, in the civil law, a term for that line of consanguinity which is between males and females, both descended from the same father; as agnation is for the line of parentage between males only descended from the same stock.

COGNIZANCE, or **CONNUSANCE**, in law, has various significations; sometimes it is an acknowledgment of a fine, or confession of something done; sometimes the hearing of a matter judicially, as to take cognizance of a cause, and sometimes a particular jurisdiction, as cognizance of pleas, is an authority to call a cause or plea out of another court, which no person can do but the king, except he can shew a charter for it.

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CO-HABITATION, among civilians, the state of a man and a woman who live together like husband and wife, without being legally married.

CO-HEIR, a person who succeeds to a share of an inheritance, to be divided among several.

COHESION, in philosophy, that action by which the particles of the same body adhere together.

The cause of this cohesion has extremely perplexed the philosophers. In all the systems of physics, matter is supposed, originally, to consist of minute indivisible atoms; but how, and by what principle these several and distinct corpuscles should come first combined into little systems, and how they should come to persevere in that state of union, is a point not yet determined: a point of the greatest difficulty, and even of the greatest importance of any in physics. J. Bernoulli, thinks it owing to the pressure of the atmosphere; others, to the figure of the component particles; but the generality, with Sir Isaac Newton, to attraction. See **ATTRACTION**.

COHABITION, in chemistry, the returning a liquor distilled from any substance back upon the same substance, and distilling it again, either with or without an addition of fresh ingredients.

COHORT, *Cobors*, in Roman antiquity, the name of part of the Roman legion, comprehending about six hundred men.

COIF, the badge of a serjeant at law.

COIN, a species of money, as gold, silver, or copper. Hence coin differs from money, as the species does from the genus; money being any matter, whether metal, wood, leather, glass, horn, fruits, shells, &c.

It seems derived from the French, *coign*; a corner; whence it has been held, that the most ancient sort of coin was square with corners.

It is one of the royal prerogatives belonging to every sovereign prince, that he alone, may order the quantities, value and fashion of his coin: but the coin of one king is not current in the kingdom of another, unless at a great loss; though our king, by his prerogative, may make any foreign coin lawful money of England at his pleasure, by proclamation. Counterfeiting, clipping, or impairing the king's coin, is high treason; as also the making any stamps, dye, mold, &c. for coining, except by persons employed in the mint, &c. and the conveying, such out

of the mint is the same, and so is colouring metal, resembling gold or silver coin, marking it on the edges, &c.

COINING, or **COINAGE**, the stamping and making money. Formerly the fabric of coins was different from what it is at present. Coining has been considerably improved and rendered expeditious by several ingenious machines, and by a wise application of the surest physical experiments to the methods of fining, trying, and stamping the different metals. The three finest instruments the mint-man uses are, the laminating engine, the machine to mill the edges of coins, and the press.

After they have taken the laminæ or plates of metal out of the mould into which they are cast, they do not beat them on the anvil, as was formerly done; but they make them pass and repass between the several rollers of the laminating engine, which being gradually brought closer and closer to each other, presently give the laminæ its uniform and exact thickness. Instead of dividing the laminæ into small squares, they at once cut clean out of it as many planchets as it can contain, by means of a sharp steel trepan, of a round figure, hollow within, and of a proportionable diameter, to shape and cut off the piece at one and the same time. After these planchets have been compared and weighed with standard pieces, filed or scraped, to get off the superfluous part of the metal, and then boiled and made clean; they arrive at last at the machine, which marks them upon the edge, and finally the press, which squeezing each of them singly between the two dyes brought near each other, with one blow, forces the two surfaces or fields of the piece to fill exactly all the vacancies of the two figures engraved hollow. The engine, which serves to laminate lead, gives a sufficient notion of that which serves to flatten gold and silver laminæ between rollers of a lesser size.

British **COINAGE**, both by the beauty of the engraving, and by the invention of the impressions on the edges, that admirable expedient for preventing the alteration of the pieces, is carried to the utmost perfection. It was only in the reign of king William III. that the hammer-money ceased to be current in England, where till then it was struck in that manner, as in other nations. Before the hammer coin was called in, the English money was in a wretched condition, having been filed and clipped by natives

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as well as foreigners, inasmuch that it was scarce left of half the value: the retrieving this distressed state of the English money, is looked upon as one of the glories of king William's reign. Being again in a very bad condition, and both much debased, and demolished, the late act of parliament, of XIII G. 3. was made to put a stop to it, by permitting all money, that wanted more than a reasonable allowance for wear, to be immediately cut and cancelled.

The British coinage is now wholly performed in the Tower of London, where there is a corporation for it, under the title of the mint, and nothing taken as formerly, either for the king, or for the expence of coining.

There is a duty of ten shillings per ton on wine, beer, and brandy imported, called the coinage-duty, granted for the expence of the king's coinage.

The invention of the press is not yet gone out of Europe; nor even established in every part of it: nor was the invention known till the year 1553, when the coining press was invented by an engraver, one Antoin Brucher, and was first tried in the French king's palace at Paris, for the coining of counters.

COINING, in the tin-works, the weighing and stamping the blocks of tin with a lion rampant, performed by the king's officer; the duty for every hundred weight being four shillings.

COITION, the intercourse between the male and the female in the act of generation.

COLARIN, in architecture, the little frieze of the capital of the Tuscan and Doric column, placed between the astragal and the annulets; called also hypotrachelium, and sometimes cincture.

COLARIN is also used for the orlo or ring on the top of the shaft of the column, next the capital.

COLCHICUM, meadow saffron, in botany, a genus of plants.

The roots of which though once esteemed poisonous, are now recommended by some, in pestilential and putrid cases, the small-pox, purple fever, &c. But great caution ought to be used in administering it.

COLCOTHAR, in pharmacy, a preparation of vitriol calcined to a redness.

COLD, in general, the privation or absence of heat: and consequently, those who suppose heat to consist in a brisk agitation of the component particles of the hot body, define cold to be such a faint

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motion of these parts, as is either altogether or nearly imperceptible to our organs of feeling: in which sense, cold is a mere term of relation between the cold body and the organs of sensation; and in fact, the same body will be felt either hot or cold, according as the sensible organ is colder or hotter than it.

Be this as it will, cold is found to have very considerable effects, and therefore should seem to be something positive. An intense degree of heat reduces most bodies, even gold and the hardest stones, the diamond excepted, to a fluid state. On the other hand, not only are these restored to their former solidity by cold, but greater degrees of it will congeal all kinds of water, even that of the ocean, and the watery particles to be found in spirits. See **FROST**, **CONDENSATION**, &c.

The ice of oily and saline bodies differs greatly from that of water, which is friable and easily broke, whereas that of mercury is ductile. And M. Braun considers all bodies which liquify by heat, as so many species of ice; so that every metal wax, tallow, and glass, comes within his view in this respect. Mercury then is, in its natural state a solid metal, but is fusible in a very small degree of heat.

COLD, in medicine, is productive of inflammatory disorders, as coughs, pleurisies, peripneumonies, rheumatic pains, consumptions, &c. See **COUGH**, **PLEURISY**, **PERIPNEUMONY**, &c.

To remove a cold in the beginning, small and repeated bleedings are recommended; which likewise prove beneficial in coughs, and the confirmed consumption, even after a purulent spitting and hectic symptoms have appeared. The quantity to be taken away at a time, may be from four to seven or eight ounces, once in eight or ten days; concerning which it is observable, that the patients do not find themselves so much relieved on the first as on the second or third night after bleeding.

COLD SHIRE-IRON, that which is brittle when cold. See **IRON**.

COLEOPTERA, among zoologists, an order of insects, comprehending all those with four wings.

COLE-SEED, the seed of the *napsus sativa*, or long-rooted, narrow-leaved, navea, and comprehended by Linnaeus among the brassicas, or cabbage kind. See **BRASSICA**.

This plant is cultivated to great advantage in many parts of England, on account

especially in marth or fenny lands, those newly recovered from the sea, or indeed any other land that is rank or fat, whether arable or pasture.

The best seeds are brought from Holland, and should be sown about Midsummer, the very day that the land is ploughed; a gallon will serve an acre.

It is likewise cultivated for winter-food for cattle, and is a very good preparative of land for barley or wheat.

COLE-WORT, in gardening, a species of brassica. See **BRASSICA**.

COLIC, in medicine, a severe pain in the lower venter, so called, because the disorder was formerly supposed to be seated in the colon.

There are different causes of these severe pains of the intestines, and according to the nature, disposition, and force of these causes, are the symptoms diversified, and the danger more or less to be apprehended. A very frequent cause is a retention and induration of the feces in the large intestines, and sometimes in the small ones, proceeding, in a great measure from a load of acido-viscid crudities, dry, juiceless, and astringent food, immoderate sleep, and a way of life unused to exercise and motion. In this obstructed and costive state of the belly, whenever it happens that upon the use of sweet aliments, and such as are subject to ferment, of fat flesh meat, especially mutton, with drinking of cool liquors, and refrigeration of the feet and belly, the inflation of the abdomen is increased, and the pain exasperated; hence we may discern the nature and marks of the flatulent colic, which the ancients ascribed to a cold cause, and whose generation and frequent attacks suppose an imbecility of the intestines, and a want of a due tone and strength in those parts; whence this sort of colic is very incident to fat and phlegmatic, as well as old and infirm persons, especially if they take not due care to keep the cold from their feet, back, and belly.

Another kind of colic is the bilious, which according to the ancients, owes its original to a hot cause, and arises from a bilious, acrid, corrupted humour, collected in too great plenty, and stagnating in the small intestines, particularly the duodenum. It frequently succeeds a great fit of anger, especially in persons of a hot and dry constitution, in a hot season; or it proceeds from an excessive use of hot and spirituous liquors, and by cooling portions, which obstruct perspiration, is

is exasperated, and rages with greater violence. The remarkable symptoms which attend it, are a hoarseness of the voice, the heart-burn, a continual loathing of food, a vomiting of porraceous bilious matter, the hiccup, a hot and feverish distemperature, restlessness, &c.

As to the method of cure, it appears, from what has been said, that the causes of this affection are surprisingly various; and it may be inferred, that the manner of treatment ought to be varied in a way suitable to the difference of the causes, whence the pain of the intestines proceeds.

When from a suppression of the customary flux of the hæmorrhoids, or menses, especially in bodies abounding with blood, there arises a violent pain of the abdomen, attended with much heat, &c. a vein should be opened in the foot, then emollient clysters, antispasmodic powders, with a small portion of nitre, cinnabar, and castor, should be used, and the feet bathed; and under a remission of the fit, care should be taken to restore the menses in women, and the hæmorrhoids in men, to their natural courses. When the pain of the intestines proceeds from a redundancy of intemperate and caustic bile, the same remedies are of service.

But what exceeds these and all other remedies in this case, is a nitrous powder, mixed with a drop or two of the true distilled oil of millefolium, to be taken in three or four ounces of the water of common chamomile-flowers.

If the pain be tense, and fixed in the right or left hypochondrium, or beneath the stomach, it is a sure sign that the disorder proceeds from flatulencies, or excrements inclosed within the flexures of the colon. In this case, the principal indication directs us to the use of clysters of an emollient, discutient, and corroborating quality, not omitting external applications of carminative and emollient liniments to the affected part.

When the rectum and part of the colon are affected with a strong convulsive stricture, so as to be incapable of transmitting either flatus or feces; and a clyster cannot conveniently be introduced, the abdomen is to be fomented all over with hot and rich oils, by coction, particularly those of chamomile, dill, or rue, boiled with the fats of a badger, dog, fox, beaver, &c. which may be introduced, if possible into the belly by clysters.

A flatulent colic, proceeding from imbecility, and want of a due tone of the

stomach and intestines, admits of the use of carminative things somewhat hotter than ordinary. Among these are spirituous carminative waters, prepared of the seeds of cumin and caraway, orange-peel, and the flowers of common Roman chamomile, and cardamums distilled in wine.

COLLAR, in a modern sense, an ornament consisting of a chain of gold, enamelled, frequently set with cyphers or other devices, with the badge of the order hanging at the bottom, worn by the knights of several military orders over their shoulders, on the mantle, and its figure drawn round their armories.

COLLAR of a Plough, an iron ring fixed on the middle of the beam, wherein are inserted the tow and bridle chains. See **Plough**.

COLLAR of a Draught Horse, a part of harness made of leather and canvas, and stuffed with straw or wool, to be put about the horse's neck.

COLLATERAL, in genealogy, those relations which proceed from the same stock, but not in the same line of ascendants or descendants, but being, as it were, aside of each other.

COLLATION, in the canon law, the giving or bestowing of a benefice on a clergyman by a bishop, who has it in his own gift or patronage. This differs from presentation, in that the latter is properly the act of a patron, offering the clerk to the bishop to be instituted into a benefice, whereas the former is the act of the bishop himself. The collator can never confer a benefice on himself.

COLLATIVE BENEFICES, those which are in the gift of the ordinaries, and within their own jurisdiction, in which case there need no presentation, but the ordinary collates or institutes the clerk, and sends him to the archdeacon, or other person, whose office it is to induct him.

COLLECTIVE, among grammarians, a term applied to a noun expressing a multitude, though itself be only singular; as an army, company, troop, swarm, flock, &c. called collective nouns.

COLLEGATARY, in the civil law, a person who has a legacy left him in common with one or more persons.

COLLEGE, *Collegium*, an assemblage of several societies, or of several persons into one society.

COLLEGE of Civilians, commonly called Doctor's Commons, founded by Dr. Harvey, dean of the arches, for the

professors of the civil law residing in the city of London. The judges of the arches, admiralty and prerogative courts, with several other eminent civilians, commonly residing here.

COLLEGE of Physicians, a corporation of Physicians in Warwick-Lane, London, whose number by charter, is not to exceed eighty. The chief of them are called fellows, and the next candidates, who fill up the places of fellows as they become vacant by death, or otherwise. Next to these are honorary fellows, and lastly, the licentiates, that is, such as being found capable, upon examination, are allowed to practise physic.

Sion COLLEGE, was formerly a religious house, next to a spittal, or hospital, and now it is a composition of both, viz. a college for the clergy of London, who were incorporated in 1631, at the request of Dr. White, under the name of the president and fellows of Sion college, and an hospital for ten poor men, the first within the gates of the house, and the latter without.

Gresham COLLEGE, or **COLLEGE of Philosophy**, a college founded by Sir Thomas Gresham, who built the Royal Exchange; a moiety of the revenue whereof he gave in trust to the mayor and commonalty of London, and their successors for ever; and the other moiety to the company of mercers; the first to find four able persons to read in the college divinity, astronomy, music, and geometry; and the last, three or more able men to read rhetoric, civil law, and physic; a lecture upon each subject is to be read in term time, every day, except Sundays, in Latin, in the forenoon, and the same in English in the afternoon; only the music lecture is to be read alone in English. The lecturers have each fifty pounds per ann. and a lodging in the college. But Gresham college having been lately pulled down, and the excise-office erected on the spot, the respective lecturers are allowed a sum annually, in lieu of their apartments, which are demolished, contrary to the will of the testator.

COLLEGE of Herald's, commonly called the *Herald's Office*, a corporation founded by charter of Richard III. who granted them several privileges, as to be free from subsidies, tolls, offices, &c. They have a second charter from Edward VI. and a house built near Doctor's Commons, by the earl of Derby, in the reign of Henry VII. was given them by the duke of Nor-

folk in the reign of queen Mary, which house is now rebuilt.

COLLEGIATE CHURCHES, those which though no bishop's see, have the retinue of the bishop; the canons and prebends. Such are, among us, Westminster, Windsor, Rippon, Wolverhampton, Southwell, Manchester, &c. governed by deans and chapters. See **DEAN** and **CHAPTER**.

COLLIFLOWER, or **CAULIFLOWER**. See **CAULIFLOWER**.

COLLIQUATION, in physic, a term applied to the bloody when it loses its crasis or balsamic texture; and to the solid parts, when they waste away by means of the animal fluids flowing off through the several glands, and particularly those of the skin, faster than they ought; which occasions fluxes of many kinds, but mostly profuse, greasy, and clammy sweats.

COLLIQUATIVE FEVER, in physic, a fever attended with a diarrhoea, or profuse sweats, proceeding from colliquation.

COLLISION, the striking of one hard body against another, or the friction or percussion of bodies moving violently in different directions, and dashing against each other. See **PERCUSSION**.

COLLUSION, a secret understanding between two parties, who plead or proceed fraudulently against each other to the prejudice of a third person.

COLLYRIUM, in pharmacy, a topical remedy for disorders of the eyes; designed to cool and repel hot, sharp humours, which they do more effectually, if assisted by the inward use of diuretics at the same time.

COLOCYNTHIS, **COLOQUINTIDA**, or **BITTER-GOURD**, the dried medullary or pulpy part of a species of gourd or cucumber, brought from Aleppo.

It is a very strong irritating cathartic; commended by some, not only as an efficacious purgative, but likewise as an alterative in obstinate chronical disorders; by others condemned, as a dangerous and deleterious drug. Thus much is certain, that when given by itself, in substance, in such doses as to purge effectually, as eight or twelve grains, it operates for the most part with great vehemence; disordering the constitution, occasioning violent gripes, and sometimes bloody discharges. Its principal use is as a stimulus to other purgatives. The watery decoctions, inspissated, yield a large proportion, half the weight of the colocynth or more, of a mu-

cilaginous extract, which purges strongly, but with much less irritation and greater safety than the colocynth itself, and appears to be the best preparation obtainable from this drastic drug.

COLON, in anatomy, the second of the three large intestines, called *intestina crassa*.

COLON, in grammar, a point or character marked thus (:), shewing the preceding sentence to be perfect or entire, only that some remark, farther illustration, or other matter connected therewith is subjoined.

COLONEL, in military matters, the commander in chief of a regiment, whether horse, foot, or dragoons.

Lieutenant COLONEL, one who is the second officer in a regiment, at the head of the captains, and commands in the absence of the colonel.

COLONNADE, in architecture, a peristyle of a circular figure; or a series of columns disposed in a circle, and insulated within-side.

COLONY, *Colonia*, a company of people transplanted into a remote province, to cultivate and inhabit it. Colonies are of three sorts: the first are those that serve to ease and discharge the inhabitants of a country, where the people are become too numerous; the second are those established by victorious princes in the middle of vanquished nations, to keep them in awe and obedience; and the third sort, those established for the promotion of trade, called colonies of commerce; such are those established by European nations in several parts of Asia, Africa, and America.

COLOPHONY, in pharmacy, the caput mortuum remaining after the distillation of the atherial oil, being further urged by a more intense and long continued fire.

Colophony reduced to powder, is of singular advantage in surgery, in cases where the bones are laid bare, or the periosteum, tendons, and muscles, injured by burns, corrosions, contusions, punctures, lacerations, or partial divisions. It also prevents defluxions of serum on the joints, and induces cicatrices; and checks the sanguous excrescences of ulcers, if applied in the same manner. Besides its drying, consolidating, and lenitive qualities, it is an ingredient in several plasters and ointments.

COLOSSUS, a statue of a gigantic, or enormous size. The most famous was the colossus of Rhodes, made, in honour of

Apollo, by Chares the disciple of Lyfippus. It was eighty-six feet high, and its thumb so large, that few people could fathom it. This statue was placed across the mouth of the harbour at Rhodes, and the ships with full sails passed betwixt its legs. It was thrown down by an earthquake 224 years before Christ.

COLOUR, in philosophy, an inherent property in light, exciting different vibrations, according to the different magnitudes of its parts, in the fibres of the optic nerve, which affect the mind with different sensations. The philosophers, before Sir Isaac Newton's time, supposed that all light, in passing out of one medium into another of different density, was equally refracted in the same or like circumstances; but that illustrious and accurate author has discovered that it is not so, but that "There are different species of light: and that each species is disposed both to suffer a different degree of refraction in passing out of one medium into another, and to excite in us the idea of a different colour from the rest; and that bodies appear of that colour which arise from the composition of the colours the several species they reflect are disposed to excite."

There are abundance of experiments made by Sir Isaac Newton, and others, for the confirmation of this doctrine.

It is sufficiently clear that whatever species of rays are thrown upon any body, they make that body appear of their own colour. Thus minium in red light appears of its own colour; but in yellow light it appears yellow; and in green light green; in blue, blue; and in violet-purple-coloured light it appears of a purple colour: in like manner verdigrise will put on the appearance of that colour in which it is placed. But each of these bodies appears most luminous and bright when enlightened with its own colour, and dimmest in such as are most remote from that.

It is certain therefore each ray is disposed to excite its own colour, which is neither to be altered by refraction nor reflection. Thus much in confirmation of the first part of the proposition, viz. that there are different species of light, and that each species is disposed to suffer a different degree of refraction, and to excite in us the idea of a different colour.

2. That bodies appear of that colour which results from a composition of those colours which the several species they reflect are disposed to excite.

Each ray, whatever be the colour of the body it is reflected from, is able to excite no other idea than that of its own colour; and that coloured bodies reflect not all the different sorts of rays that fall upon them in equal plenty, but some sorts, viz. those of their own colour, much more copiously than others. We will now proceed to shew, that the other colours may be produced from a mixture of those seven, which rays of light, when separated by a prism, are disposed to exhibit, viz. red, orange, yellow, green, blue, indigo, and a violet purple. From whence it will be rational to conclude, that bodies appear of that colour which arises from the mixture of those which they reflect.

1. All the prismatic colours, viz. those that are made by the prism, mixed together, appear white, a little inclining to yellow, such as is that of the sun's light.

To shew this, let a convex lens be placed between the prism and the paper which receives the image, in order that the rays separated by it may be collected into a focus; and let this focus fall upon the paper, then will the spot where it falls appear white. And that the whiteness of this focal point is owing to the union of those colours appears from hence, that if we remove the paper from the focal point, and suffer the rays to cross each other in the focus, and if, when they have proceeded to some distance beyond, they be then received upon the paper, the same coloured image will be exhibited, and inverted, because the rays cross each other in the focus; an evident proof that the whiteness in the spot was owing to nothing but the mixture of the rays constituting the several colours of the image. But if the rays of any particular colour be intercepted before they are collected in the said spot, it then appears not only of a different colour from what it did before, but different from any of the prismatic colours taken separately. Or if the circumference of a wheel be painted with the prismatic colours taken in the same proportion with respect to each other, in which they are exhibited in the image made by the prism, and the wheel be turned swiftly about, the circumference of that wheel shall appear white: if they are taken in other proportions the colour of the wheel, when turned about, will vary accordingly. From whence this part of the proposition is also abundantly clear.

No composition of these colours will produce black; that being no colour but the

the defect and absence of all colour whatever. That species of light which is disposed to suffer a greater degree of refraction, requires proportionally less obliquity at the second surface of any medium to occasion a total reflection of it there; so that it is possible that a ray of light may pass through a medium with such obliquity, that only that part of it which is disposed to exhibit a violet colour should be reflected at the second surface, and all the rest transmitted there. This indeed is a necessary consequence of what was observed concerning the reflection of light at the second surface of any medium, viz. that the reflection of a ray is total, when the obliquity of the incident ray is such, that the angle of refraction ought to be equal to, or exceed a right one. This is a consequence of that, because the angle of the refraction of the violet-coloured light is larger than the angle of refraction of any other, though their angles of incidence are equal.

From experiments, it appears probable, that it is owing to the different magnitude of the particles, whereof bodies are composed, that some have a power of reflecting one sort of rays more copiously, and some another.

COLOUR, in painting, is applied both to the drugs made use of in that art, and to the tints produced by those drugs variously mixed and applied.

Colours may be either pigments or fluids. By pigments is meant all such solid bodies as require to be mixed with some fluid, as a vehicle, before they can be used as paints, except in the case of crayons, where they are used dry. These make the far greater part of the whole; the fluid colours being only a small number employed along with water-colours; and asphaltum, which is sometimes employed in oil-painting.

Colours are distinguished into several kinds, according to the vehicles in which they are worked, as oil-colours, water-colours, enamel-colours, &c. The same sorts of pigments, however, are, in many instances, employed in more than one kind of painting, as vermilion and lake in several, and ultramarine in all.

The principal qualities in colours, considered with regard to their perfection or faultiness, are two; purity of colour, and durableness: purity of colour is, by the painters, called *brightness*, and the defect of it *fauiness*, or sometimes the breaking the colour: durableness is called *standing*, and the negative, or want of it, *flying*, or flying off.

Brightness and standing well are the only properties which are necessary to the perfection of every kind of colours, and they equally relate to all; but there are others which are essential to many sorts, with regard only to particular purposes and uses. As transparency, and opacity, that of drying well, and as it is called, not fattening; and, lastly those distinguished by the names of warmth and coolness: all which are well known to painters.

The colours used in all the several kinds of painting, except some peculiar to enamel, are as follow:

Class I. Red—Vermilion, native cinabar, red lead, scarlet oker, common Indian red, Spanish brown, terra de Sienna burnt; these are scarlet, or tending to the orange. Carmine, lake, rose-pink, red oker, Venetian red; these tend to the crimson or to the purple.

Class II. Blue—Ultramarine, ultramarine ashes, Prussian blue, verditer, cendre blue, or sanders blue, indigo, smalt, bice, litmus, or lacmus.

Class III. Yellow—King's yellow, Naples yellow, yellow oker, Dutch pink, English pink, light pink, gamboge, masticot, common orpiment, gall-stone, terra de Sienna unburnt, turpith mineral, yellow berry-wash, turmeric wash, tincture of saffron.

Class IV. Green—Verdigrise, distilled verdigrise, or crystals of verd-grise, Prussian green, terra vert, sap green.

Class V. Orange—Orange lake.

Class VI. Purple—True Indian red, archal, logwood wash.

Class VII. Brown—Brown pink, bistre, brown oker, umbre, Cologne earth, asphaltum, Spanish juice, or extract of liquorice.

Class VIII. White—White flake, white lead, calcined hartshorn, pearl-white, troy-white, egg-shell white.

Class IX. Black—Lamp black, ivory black, blue black, Indian ink. See each of the above under its proper article.

These are all the colours at present in use in this country, in any kind of painting, except such as are peculiar to enamel; in which kind of painting, as but few of these are capable of combining with glass, and enduring the necessary heat without changing their nature, or being destroyed, others are employed more suitable to vitrification: for which, see **ENAMEL Painting**.

Theory for mixing of COLOURS. There are two things to be principally considered in

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In regard to colours; namely, the hue, and the strength of light and shadow: for as different colours, suppose red and green, may have the same strength of light, so two things, that are one of them much darker than the other, may still have the same hue, as light blue and a dark blue.

With respect to the hue, these two things are to be considered: 1°. The species of colour; and, 2°. The perfection and imperfection of colour under the same species. Colours differ in species, as blue and red, and colours of the same species differ in degrees of perfection, as the red of a field poppy is much more perfect than the red of a brick. This quality of perfection and imperfection in the colours, by the painters, is expressed by the terms bright, or clean or simple, and broken, which is taken from their method of making the imperfect colours by the mixture of other colours, which is called breaking the colours. With respect to this quality of colours, Sir Isaac Newton, in his *Treatise on Optics*, shews that every ray of light has its proper colour, which it always carries with it, and never loses, in whatever manner it happens to be reflected or refracted. These natural colours of the rays are the bright simple colours, and the natural order of them, as they appear when they are separated by the refraction of a prism, is red, orange, yellow, green, blue, indigo, violet: all the less perfect or broken colours are made by the composition and mixture of these simple colours, as yellow rays mixed with blue rays make a green, but not so perfect as the simple natural rays that are green; and red and yellow rays make an orange colour, but not so perfect as the natural orange-coloured rays. And by a just proportion of all the natural rays together, is produced whiteness, which is indifferent to all the simple colours, and cannot be said to incline more to one colour than to another. By white is to be understood any colour between the lightest white and the darkest black; for as we are now considering the degrees of light and shade, all the colours from black to white are to be considered as of the same hue.

According to this observation of the nature of whiteness, it appears that the broken colours are a medium between the simple colours and white; and the more broken a colour is, the nearer it is to white, and the further it is from white, the more simple it is.

COLOUR, in heraldry. The colours generally used in heraldry are red, blue,

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black, green, and purple, which heralds call gules, azure, sable, vert, or sinople, and purple. Tawny, or tawney, and sanguine, are not so common. As to yellow and white, called or and argent, they are metals, not colours. These metals and colours are sometimes also expressed in blazon by the names of precious stones, and sometimes by those of planets, or stars.

COLOURS used in Dying. There are in the art of dying five colours, called simple, primary, or mother colours, from the mixture of which all other colours are formed; these are blue, red, yellow, brown, and black. Of these colours, variously mixed and combined, they form the following colours, pansy, blue, and red; from the mixture of blue and scarlet are formed amaranth, violet, and pansy; from the same mixture of blue, crimson, and red, are formed the columbine or dove-colour, purple, crimson, amaranth, pansy, and crimson-violet.

Here it is to be observed, that they give the name crimson to all colours made of cochineal.

Of blue and red madder is dyed purple, pepper-colour, tan colour, and dry-rose colour.

The same blue, with red, half in grain, makes amaranth, tan colour, and dry-rose colour.

Blue and half red crimson compose amaranth, tan colour, dry-rose, a brown pansy, and sun-brown.

Blue and yellow mixed together compose a yellow-green, spring-green, grass-green, laurel-green, brown-green, dark-green; as well as sea-green, parrot-green, cabbage-green, &c. these three last colours are to be less boiled than the rest.

It is to be observed, that as to green there is no ingredient or drug in nature that will dye it, but the stuffs are dyed twice, first in blue, then in yellow.

Blue and brown. These two colours are never mixed alone; but with the addition of red, either of madder or cochineal, they form several colours.

Red and yellow. All the shades composed of these two colours, as gold-yellow, aurora, marygold, orange, nacarat, granat-flower, flame colour, &c. are made with yellow and red of madder; scarlet being less proper as well as too dear.

Red and brown. Of these two colours are formed cinnamon colour, chestnut, mink, bears-hair, and even purple, if the red be that of madder.

Yellow

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Yellow and brown. The colours formed from these two are all the shades of seville-mort and hair-colours.

But this may be taken notice of, that though it be said that there are no colours or shades made from such and such mixtures, it is not meant that none can be made, but that they are more easily formed from a mixture of other colours.

COLOUR, in law, a plausible plea, tho' really false.

COLOURING, among painters, the manner of applying and conducting the colours of a picture; or the mixtures of light and shadows formed by the various colours employed in painting. The colouring is one of the chief branches in painting, which art is, by Mr. Felibien, divided into three parts, the design, the composition, and the colouring. See PAINTING.

Though the colouring is most striking, yet, among masters, it always gives place to the exactness of the design. According to M. de Piles, the word colouring, in a more limited sense, is chiefly applicable to a history-piece, scarce at all to landscapes: he adds, that the term relates more immediately to the carnations than to any thing else. The colouring, in its general sense, comprehends whatever relates to the nature and union of colours; their agreement or antipathy; how to use them to advantage in light and shadow, so as to shew a relievè in the figures, and a sinking of the ground; what relates to the aerial perspective, that is, the diminution of colours by means of the interposition of the air; the various accidents and circumstances of the luminary, and the medium; the different light both of the bodies illuminating and illuminated; the reflections, shadows, and different views with regard to the position of the eye, or the object; what produces strength, boldness, sweetness, &c. in paintings, well coloured; the various manner of colouring, both in figures, landscapes, &c.

The *Coloris*, or colouring, is different from colour; the latter renders the object sensible to the eye; the former is that by which the painter knows how to imitate the colour of all natural objects, by a judicious mixture of the simple colours upon his pallet; it teaches the manner in which colours are to be used for producing those fine effects of the *chiaro obscuro*, light and shade, which add boldness and a kind of relievè to the figures, and shew the remoter objects in their just light.

For the effects of colours, painters regard either the union or the economy:

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with respect to the first, care must be taken that they be laid so as to be sweetly united under the briskness of some principal one; that they participate of the prevailing light of the piece; and that they partake of each other by the communication of light and the help of reflection.

COLOURING and non-colouring Drugs. Into these dyers distinguish their ingredients: the first are applicative, and communicate their colours to the matters boiled in them, or passed through them, as woad, scarlet-grain, cochineal, indigo, madder, turmeric, &c. The second serve to prepare and dispose the stuffs, &c. and to extract the colour out of the colouring ingredients; as alum, salt or crystal of tartar, arsenic, realgal, salt-petre, common salt, sal ammoniac, sal gemma, agric, spirit of wine, bran, peas-flour, wheat, starch, lime, and ashes.

COLT, in zoology, the young of the horse-kind. See FOAL.

COLT'S FOOT, in botany, the tussilago. See TUSSILAGO.

COLUMBINE, *Aquilegia*, in botany. See AQUILEGIA.

COLUMBINE-Colour, or dove-colour, among painters, a kind of violet.

COLUMN, in architecture, a round pillar, to support and adorn a building composed of a base, a shaft, and a capital. As every fulcrum is so much the more perfect, as it is firm, or carries the appearance of firmness; hence all columns ought to have their base broader than themselves. See BASE.

As a cylinder and a quadrangular prism are more easily removed out of their place than a truncated cone, or a pyramid on the same base, and of the same altitude, the figure of columns ought not to be cylindrical, but grow less and less, like a truncated cone. Again, as columns are more firm if their diameter bears a greater proportion to their height than if it bore a less, the greater ratio is to be chosen where a large weight is to be sustained; and less, where a small weight is to be supported. Further, as the design of a column is to support a weight, it must never be supposed without an entablature.

Columns are different in the different orders of architecture, and may be considered with regard to their matter, construction, form, disposition, and use. With respect to the order, we have

Tuscan COLUMN, that which has seven diameters in height, and is the shortest and most simple of all the columns. See TUSCAN. Its diminution is one fourth; that

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that is, the diameter at top is three fourths of the diameter just above the base.

Doric COLUMN has eight diameters in height, and its capital and base more enriched with mouldings than the Tuscan. It diminishes one fifth part of the diameter at the base. See **Doric**.

Ionic COLUMN has nine diameters in height, and differs from the others by the volutes in its capital, and by its base. See **Ionic**.

Corinthian COLUMN, the richest and most delicate of all, has ten diameters in height, and its capital adorned with two rows of leaves with caulicoles, from whence spring small volutes. It diminishes one seventh part of the diameter. See **CORINTHIAN**.

Composite COLUMN, has ten diameters in height, and two rows of leaves in its capital, with angular volutes like the Ionic. It diminishes one eighth part of the diameter of the base. See **COMPOSITE**.

It may be observed, that different authors give different heights and proportions to columns of the same order, and that frequently the same author takes the liberty of dispensing with his own rules; but the heights and proportions exhibited above are a mean between the extremes of all the rest.

COLUMNS with regard to their Materials, are:

Fusible COLUMN, which comprehends not only columns of various metals, and other fusible matter, as glass, &c. but also those of stone, said to be cast, the secret of which some believe to have been known to the ancients.

Hydraulic COLUMN, that whose shafts appear to be of crystal; being formed by a number of little threads of water, falling from holes made in a gilt of metal, at equal distances, by means of a pipe mounting through the middle of it. It also denotes a column from whose top proceeds a jet d'eau, to which the capital serves as a basin, whence the water descends by a little pipe, which turns spirally round the shaft.

Moulded COLUMN, that made by imposition of gravel and flints of divers colours, bound together with a cement.

Water COLUMN, that whose shaft is formed of a large jet d'eau, which spouting out water violently from the base, drives it within the tambour of the capital, which is hollow, and in falling down it resembles a column of liquid crystal.

C O L

COLUMNS, with regard to their Construction.

Cabled or Rudented, COLUMN, that having projectures in form of cables, in the naked of the shaft, each cable having an effect opposite to that of a fluting, and accompanied with a little list on each side.

Colossal COLUMN, one of so large a size as not to enter any ordinance of architecture, but designed to be placed solitary in the middle of a square, &c. Such is the Trajan column.

Ornamental COLUMN, that adorned with foliages, turned spirally round the shaft, or in form of crowns and festoons: they are very proper for decorations of theatres.

Diminished COLUMN, that which has no swelling, but begins to taper from the base, in imitation of trees.

Geminated COLUMN, that whose shaft is formed of three similar and equal sides or ribs of stone, fitted within one another, and fastened at bottom with iron pins, and at top with cramp irons: it ought to be fluted, that the joints may be less discernable.

COLUMN of Joinery, that made of strong timber-boards joined together: it is hollow, turned in the lathe, and usually fluted: such are the columns of most altar-pieces.

COLUMN of Masonry, is made of rough stone, well laid and covered with plaster; or of bricks, laid triangularwise, and covered with stucco.

COLUMN of Tambours or Bands, that whose shaft is formed of several courses of stone, or blocks of marble, less high than the diameter of the column.

COLUMN in Truncatums or Pieces, consists of two, three, or four pieces of stone or metal, differing from the tambours, as being higher than the diameter of the column.

COLUMNS with regard to their Form, are:

Fluted COLUMNS, called also channelled and striated columns, those whose shafts are adorned with flutes or channelings, either from top to bottom, or only two thirds of their height.

Grothic COLUMN, a round pillar, either too short for its bulk, or too slender for its height, having sometimes twenty diameters, without either diminution or swelling, consequently differing widely from the proportions of the antique.

Herme.

Hermetic COLUMN, a kind of pilaster, in manner of a terme, having the head of a man in lieu of a capital. It is so called because the ancients placed on the top of such columns the head of Mercury.

Majestic COLUMN, one too short for the order, the capital of which it bears: it likewise comprehends Tuscan and Rustic columns.

Oval COLUMN, that whose shaft has a flaneish, its plane being made oval, to reduce the projecture.

Pastoral COLUMN, that whose shaft is formed in imitation of a trunk of a tree, with bark and knots. It may be used in the gates of parks and gardens, and in the decoration of pastoral scenes.

Serpentine COLUMN, that formed of three serpents twisted together, the heads of which serve as a capital; it is now called the talisman, or enchanted column.

Swelled COLUMN, that which has a bulging in proportion to the height of the shaft. This practice obtains among the modern architects, but seems to have been unknown to the ancients.

Twisted COLUMN, that whose shaft is twisted round in form of a screw, with six circumsolutions, being ordinarily of the Corinthian order. Sometimes the twisted column is in form of two or three slender shafts twisted round, so as to leave a cavity in the middle.

COLUMNS, with regard to their Disposition.

Angular COLUMN is an insulated one, placed in the corner of a portico, or inserted in the corner of a building, or even a column that flanks any angle of a polygon.

Artic COLUMN, an insulated pilaster having four equal faces, and of the highest proportion.

Cantined COLUMNS, those columns engraved in the four corners of a square pillar, to support four springs of an arch.

Coupled COLUMNS, those disposed two and two, so as almost to touch each other at their bases and capitals.

Doubled COLUMNS, one column joined with another in such a manner that the two shafts penetrate each other with a third of their diameter.

Embraced COLUMN, that which enters in a wall with one third or one fourth of its diameter.

Grouped COLUMNS, those placed on the same pedestal or socle, either by three and three, or four and four.

Insulated COLUMN, one standing free and detached from every other body.

Midian COLUMNS, a name given by Vitruvius to the two columns in the middle of a porch, which have their intercolumniation larger than the rest. The term may also be applied to the middle row of columns in a frontispiece adorned with three orders.

Nicked COLUMN, that whose shaft enters with half its diameter into a wall, hollowed out for its reception with its plane parallel to the projecture of the tore.

COLUMNS, with regard to their Use, are either, 1st. Astronomical columns, such as that at Paris, erected for astronomical observations. 2^d. Chronological column. 3^d. Funeral column, which generally bears an urn, and has its shaft overpread with symbols of grief and of immortality. 4th. Gnomonic column, a cylinder, upon which the hour of the day is represented by the shadow of a style: of these there are two kinds; in the one the style is fixed, and the hour-lines are no more than the projection of a vertical dial upon a cylindrical surface: in the other the style is moveable, and the hour-lines are drawn to the different heights of the sun in the different seasons of the year. 5th. Historical column, that whose shaft is adorned with a basso relievo, running in a spiral line its whole height, and containing the history of some great personage. 6th. Hollow column, that which has a spiral stair-case within-side, for the convenience of ascending to the top. 7th. Indicative column, that which serves to shew the tides along the sea-coasts. 8th. Instructive column, that which conveys some precept or instruction, such as that raised by the son of Pisistratus at Athens, containing the rules of agriculture. 9th. Itinerary column, one with several faces placed in the crossing of several roads, serving to shew the different routes by the inscriptions engraved on its several faces. 10th. Lactary column, at Rome, a column, according to Festus, in the herb-market, in the pedestal of which was a cavity, wherein young children, abandoned by their parents, through poverty or inhumanity, were exposed to be educated at the expence of the public. 11th. Legal column, among the Lacedaemonians, that erected in a public place, upon which were engraven the fundamental laws of the state. 12th. Limitrophous, or

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boundary column, that which shews the limits of a kingdom, or country, conquered. Those called the Columns, or Pillars of Hercules, are two very steep mountains, in the streights of Gibraltar. 13. **Luminous column**, one formed in a cylindrical frame, mounted and covered over with oiled paper or gauze, so that lights being disposed in ranks within over each other, the whole appears to be on fire. 14. **Manubriary column**, a column adorned with trophies, built in imitation of trees, whereon the spoils of enemies were anciently hung. 15. **Memorial column**, that raised on occasion of any remarkable event, as the Monument in London, built to perpetuate the memory of the burning of that city in 1666. 16. **Menian column**, any column that supports a balcony, or meniana. 17. **Miliary column**, a column of marble, raised, by order of Augustus, in the middle of the Roman forum, from whence, as a center, the distances of the several cities of the empire were reckoned by other miliary columns, disposed at equal distances on all the grand roads. 18. **Rostral column**, that adorned with the beaks, or prows of ships, &c. erected either in memory of a naval victory, or in honour of some admiral, &c. 19. **Statuary column**, that which supports a statue. 20. **Symbolical column**, that representing by symbols some particular country, or some memorable action. 21. **Triumphal column**, that erected by the ancients in honour of an hero; the joints of the stones or courses of which were covered with as many crowns as he had made military expeditions. 22. **Zoophoric column**, a kind of statuary column, bearing the figure of some animal.

COLUMN, among printers, half a page, when the page is divided into two parts from top to bottom.

COLUMN, in the military art, a long deep file of troops or baggage.

The first and second lines of an army, as they are encamped, make generally two columns on a march, filing off either to the right or left: sometimes the army marches in four, six, or eight columns, as the ground will allow; and each column is led by a general officer.

COLURES, in astronomy and geography, two great circles supposed to intersect each other at right angles, in the poles of the world, and to pass through the solstitial and equinoctial points of the ecliptic.

C O M

That which passes through the two equinoctial points, is called the equinoctial colure, and determines the equinoxes; and the other, which passes through the poles of the ecliptic, is called the solstitial colure, because it determines the solstices. See EQUINOX and SOLSTICE.

COMA, or **COMA-VIGIL**, a preternatural propensity to sleep, when nevertheless, the patient does not sleep, or if he does, awakes immediately, without any relief. This disorder is always symptomatic, and often attends acute, burning, and malignant fevers; as also an inflammation of the dura mater, and ushers in a phrenzy. Sometimes it attends a hemiplegia. For the cure of the comavigil, if the fever has not continued above the third or fourth day, it is expedient to take away a large quantity of blood; then the body, if costive, must be opened with clysters, which must not be very acrid: afterwards diluters and refrigerants should be given to moderate the febrile heat, such as absorbent powders, gentle nitrous medicines, taken in a draught with diaphoretic antimony, &c.

COMA SOMNOLENTUM is when the patient continues in a profound sleep, and when awakened, immediately relapses, without being able to keep open his eyes. This is a primary disease, and must have a cause which obstructs the passage of the nervous fluid from the cortical part of the brain to the medulla oblongata, throughout the whole brain.

A coma somnolentum is divided into ferous and sanguine. The first requires the natural ferous evacuations to be restored or promoted; gouty fits are to be invited. Sternutatories are also of great use, as they discharge the serum through the nose, and stimulate the nerves: and when a viscid phlegm offends the stomach, vomits are useful, with powder of squills, or emetic tartar, with a laxative portion. In a sanguine coma somnolentum, when the blood circulates slowly, or stagnates in the head, as in hypochondriac and scorbutic cases, all hot spirituous remedies are as bad as poison; but bleeding, clysters, gentle laxatives, cooling and nervous powders, are useful.

COMA BERENICES, Berenice's hair, in astronomy, a constellation in the northern hemisphere, composed of stars near the lion's tail.

This constellation consists of three stars, according to Ptolemy; of thirteen, according to modern astronomers.

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ing to Tycho; and of forty, in the Britannic Catalogue.

COMB, an instrument to clean, untangle, and dress flax, wool, hair, &c.

Combs for wool are prohibited to be imported into Britain.

COMB is also the crest, or red fleshy tuft, growing upon a cock's head.

COMBAT, an engagement, or a difference decided by way of arms.

COMBAT, in our ancient law, a formal trial of some doubtful cause or quarrel by the swords or battons of two champions. This form of proceeding was very frequent, not only in criminal, but in civil, causes; being built on a presumption that God would never grant the victory but to him who had the best right. The last trial of this kind in England, was between Donald lord Ray, appellant, and David Ramsay, Esq. defendant, when after many formalities, the matter was referred to the king's pleasure.

COMBATANT, in heraldry, a term for two beasts, as lions, &c. borne in a coat of arms, in a fighting posture, with their faces to each other.

COMBINATION, an assemblage of several things by two and two: but more particularly used in mathematics, to denote the variation or alteration of any number of quantities, letters, sounds, or the like, in all the different manners possible. F. Merfenne gives us the combinations of all the notes and sounds in music, as far as 64, the sum whereof amounts to 90 figures, or places.

The number of possible combinations of the 24 letters of the alphabet, taken first two by two, then three by three, &c. according to Mr. Prestet's calculation, amount to 139172428887252999425123493422200. F. Truchet, in the Memoirs of the French Academy, shews, that two square pieces, each divided diagonally into two colours, may be arranged and combined sixty-four different ways, so as to form so many different kinds of chequer-work; which appears very surprising when we consider that two letters, or figures can only be combined twice.

Problem 1. Any number of quantities being given, together with the number in each combination, to find the number of combinations.

One quantity, we observe, admits of no combination; two, a and b , of one: or three, $a b c$, there are three combinations, viz. $a b$, $a c$, $b c$; of four, six, $a b$, $a c$, $b c$, $a d$, $b d$, $c d$; of five, ten, $a b$,

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$a c$, $b c$, $a d$, $b d$, $c d$, $a e$, $b e$, $c e$, $d e$; whence it appears that the number of combinations proceed as 1, 3, 6, 10, 15, &c. wherein if we have n for the number of terms or quantities to be combined, we

shall have $\frac{n \times n-1}{1 \times 2}$ for all the different

ent pairs that can be taken in the number of quantities n . If the proposed combinations are to be taken three by three,

$\frac{n \times n-1 \times n-2}{1 \times 2 \times 3}$ will express the number of combinations sought: but if they

are to be taken by four, $\frac{n \times n-1 \times n-2 \times n-3}{1 \times 2 \times 3 \times 4}$

will be the answer; and universally, if p be put for the number of quantities to be

taken each time, then will $\frac{n \times n-1 \times n-2 \times \dots \times n-p+1}{1 \times 2 \times 3 \times \dots \times p}$

$\times \dots \times$ &c. continued to p terms,

represent the number of combinations of p things in n .

Example. Let the number of quantities to be combined be 8, and 4 the number of them to be taken; then by expounding n by 8, and p by 4, we shall have $8 \times \frac{7}{2} \times \frac{6}{3} \times \frac{5}{4}$ or 70, for the number of combinations required.

The number of all the possible combinations, beginning from the combinations of every two, will, by writing successively for p the numbers 2, 3, 4, 5, &c. be $\frac{n \times n-1}{1 \times 2} + \frac{n \times n-1 \times n-2}{1 \times 2 \times 3} + \frac{n \times n-1 \times n-2 \times n-3}{1 \times 2 \times 3 \times 4} + \dots$

$\times \dots \times$ &c. which is well known to be the sum of the unice of the binomial $1 + 1$, raised to the n power, and abridged of the exponent of the power increased by unity $n + 1$; therefore the number of all the possible combinations will be expressed by $2^n - n - 1$.

COMBINATORY, something belonging to combination. See the preceding article.

COMBINATORY Distillation, a method of rectifying spirits, much practised by distillers, by distilling several ingredients along with the spirits; such are alkaline salts, and spirits, and other saline bodies capable of giving the spirits a good

good flavour. This method is condemned by Dr. Shaw, because these ingredients mix themselves so intimately with the spirits, as not to be easily separated again: hence, instead of rectifying or improving, they prevent the true and genuine taste of the spirits.

COMEDY, a kind of dramatic poetry, which gives a view of common and private life, recommends virtue, and exposes the vices and follies of mankind in an humorous and merry way. Critics are much divided about the nature of comedy. Aristotle calls it an imitation of the worst, or rather, of the lowest, class of persons, by ways of ridicule. Mr. Corneille finds fault with this, and maintains that the actions of king's themselves may enter comedy, provided they be such as are not very momentous, unattended with any considerable danger. Mr. Congreve seems pretty much of the same opinion: but Mr. Dacier is of the contrary opinion: he maintains, that comedy allows of nothing grave or serious, unless it be turned to ridicule; and that rallery and ridicule are its only proper and genuine marks. Thus different are critics on the nature of comedy: nor are they better agreed concerning the characteristic which distinguishes it from tragedy. Some distinguish it by the lowness of the subject; others by the ridiculous light it is set in. According to F. Bossu, comedy differs from tragedy in this, that the comic writer invents both the names of his persons, and the action which he presents; whereas the tragic-writers invent only the latter; the former they are to take from history. Comedy has parts of quality and parts of quantity. Of the first kind there are four essential, the fable, the manners, the sentiments, and the diction; to which two are added, which only relate to the representation, viz. the music and decoration. See FABLE, MANNERS, &c.

The parts of quantity are also four. 1. The entrance. 2. The working up of the plot. 3. The full growth of the plot, or the counter-turn. 4. The discovery, or unravelling of the plot. These in the language of the ancients, are called the *protasis*, *epitasis*, *catastasis*, and *catastrophe*. See *PROTASIS*, *EPITASIS*, *ACT*, &c. With regard to the various revolutions comedy has undergone, it is commonly distinguished into three kinds, viz. the ancient, the middle, and new. This last kind alone was received among the Romans, who ne-

vertheless made a new subdivision of it into ancient, middle, and new, according to the various periods of the commonwealth. Among the ancient comedies were reckoned those of Livius Andronicus; among the middle those of Pacuvius; and among the new ones, those of Terence. They likewise distinguished comedy according to the quality of the persons represented, and the dress they wore, into *togata*, *prætexata*, *trabeata*, and *tabernaria*; which last agrees pretty nearly with our farces. Among us, comedy is distinguished from farce, as the former represents nature as she is; the other distorts and overcharges her. They both paint from the life, but with different views: the one to make nature known, the other to make her ridiculous.

COMET, in astronomy, an opaque, spherical, and solid body like the planets; and like them performs its revolutions about the sun in an elliptical orbit, which has the sun in one of its foci. The particulars in which comets differ from the planets are, that they move in various directions, some the same way with the planets, others the contrary; neither are their motions confined within the zodiac, their orbits admitting of any inclination to the ecliptic whatever: and the eccentricity of their orbits is so very great, that some of the comets perform the greatest part of their motion almost in right-lines, tending in their approach to the sun almost directly towards it, after which they pass by it, and when they leave it, move off again nearly in a right line, till they are out of sight, as if they were hastening back to the fixed stars, and return not till after a period of many years.

Comets were looked upon by the ancients in general, as nothing more than sublimary vapours, or fiery meteors; and consequently little notice was taken of them, till the year 1577, when Ticho Brahe seriously pursuing the study of the stars, and being provided with large instruments fit for making celestial observations, with far greater care and certainty than the ancients could ever hope for; there appeared a very remarkable comet; to the observation of which Ticho vigorously applied himself; and found by many just and faithful trials, that it had not a diurnal parallax that was at all perceptible; and consequently was not only no aerial vapour, but also much higher than the moon; nay, might be placed

placed amongst the planets for anything that appeared to the contrary: the cavilling opposition made by some of the school-men in the mean time being to no purpose. Next to Ticho came the sagacious Kepler. He, having the advantage of Ticho's labours and observations, found out the true physical system of the world, and greatly improved the science of astronomy. This great astronomer had an opportunity of observing two comets, one of which was a very remarkable one; and from the observations of these (which afforded sufficient indications of an annual parallax) he concluded, that the comets moved freely through the planetary orbs, with a motion not much different from a rectilinear one; but of what kind he could not then precisely determine. Next Hevelius, (a noble emulator of Ticho Brahe) following Kepler's steps, embraced the same hypothesis of the rectilinear motion of comets, himself accurately observing many of them; yet he complained that his calculations did not perfectly agree to the matter of fact in the heavens; and was aware that the path of a comet was bent into a curve line towards the sun: at length came that prodigious comet of the year 1680, which descending, as it were, from an infinite distance perpendicularly towards the sun, arose from him again with as great a velocity. This comet, which was seen for four months successively, by the very remarkable and peculiar curvity of its orbit, above all others, gave the fittest occasion for investigating the theory of its motion. And the Royal Observatories at Greenwich and Paris, having been for some time founded, and committed to the care of most excellent astronomers, the apparent motion of this comet was most accurately, (perhaps as far as human skill could extend) observed by Mr. Flamsteed and Mr. Cassini.

Not long after the illustrious Newton, writing his *Mathematical Principles of Natural Philosophy*, demonstrated not only that what Kepler had found did necessarily obtain in the planetary system; but also that all the phenomena of comets would naturally follow from the same principles: which he abundantly illustrated by the example of the aforesaid comet of the year 1680, shewing at the same time a method of delineating the orbits of comets geometrically.

That comets are not aerial vapours, or even formed by exhalations from the sun

and planets, Sir Isaac Newton has clearly shewed; by proving that the comet of 1680, in its passage through the solar regions, would have been dissipated had it consisted of such: for the heat of the sun, it is allowed, is as the density of his rays, i. e. reciprocally as the squares of the distances of places from the sun: wherefore, since the distance of that comet in its perihelion, December the 8th, was observed to be to the distance of the earth from the sun, nearly as 6 to 1000; the sun's heat in the comet, at that time, was to his heat with us at Midsummer, as 1000000 to 36, or 23000 to 1. It is found by experiment, that the heat of boiling water is little more than three times the heat of our dry earth, when exposed to the Midsummer's sun; and assuming the heat of red-hot iron to be about three or four times as great as that of boiling water; he thence concludes, that the heat of the dried earth, or body of the comet in its perihelion, must be near 2000 times as great as that of red-hot iron.

Such an immense heat once acquired in its perihelion, the comet must be a long time in cooling again. The same author computes, that a globe of red-hot iron, of the dimensions of our earth, would scarce be cool in 50000 years. If then the comet be supposed to cool 100 times as fast as red-hot iron; yet, since its heat was 2000 times greater, supposing it of the bigness of the earth, it would not cool in a million of years.

There is one remarkable phenomenon which sometimes, though very seldom, accompanies the passage of comets in their orbits; and that is what may be called cometary eclipses; for when a comet comes in the syzygial line of the sun and the earth, it must very much abate the solar light, though its visual diameter may not equal it. But if it should equal or exceed it, and such have made their appearance, if their course be not exceedingly rapid, the sun will be darkened, through a much greater extent of earth, for a much longer duration, and attended with a more remarkable obscurity, than any circumstances of a solar eclipse ever can be; such probably might be the Egyptian darkness in the Jewish history, that of Jupiter and Alcmena in the Grecian, and of Augustus in the Roman; besides others unrecorded in the annals of history.

Astron

Astronomers make use of several methods for investigating the apparent place of a comet, one whereof is the following: They observe what two stars are directly one on one side, and the other on the other; which is done by holding up a thread between the eye and the two stars, and extending it in such a manner, as that it shall seem to cross each star; then they look out for two other stars in a like situation, that the comet may appear in a line drawn from one to the other, which are found as before; then they extend a thread upon the celestial globe, from one of the two first stars to the other, and another thread from one of the last stars to the other: and the point on the globe where the threads cross, is the apparent place of the comet at the time the observation was made. This they do daily, and so trace out its apparent course in the heavens.

COMETARIUM, a curious machine, exhibiting an idea of the motion of a comet about the sun.

COMITIA, in Roman antiquity, an assembly of the people, either in the comitium or campus-martius, for the election of magistrates, or consulting on the important affairs of the republic.

COMITIUM, in Roman antiquity, a large hall in the forum, where the comitia were ordinarily held.

COMMA, among grammarians, a point or character marked thus (,) denoting a short stop, and to divide the members of a period.

COMMA, in music, an interval equal to the difference of the tone major and minor, and expressed by the ratio 81:80. See **INTERVAL** and **TONE**.

COMMAND, in the royal navy, the rank and power of an officer who has the management of a ship of war under twenty guns, called a sloop, also that of an armed ship or bomb vessel.

COMMANDER, an officer who governs a sloop of war, armed ship, or bomb-ketch, and who has the rank of major in the army.

COMMANDING GROUND, in the military art, an eminence overlooking any post or strong place.

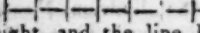
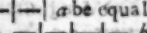
COMMANDMENT, in a legal sense, is used variously: it is sometimes taken for the commandment of the king; as when, upon his own motion, and from his own mouth, he orders any person to prison. Sometimes it is used for the commandment of the justices: this commandment is either absolute, or ordinary:

absolute is when a justice commits a person to prison for contempt, &c. upon his own authority, as a punishment: ordinary is where a justice commits a person rather for safe custody than for punishment; the person thus committed by ordinary commandment is bailable. In another sense of the word, magistrates may command others to assist them in the execution of their offices, in order to keep the king's peace, &c.

COMMANDMENT, is used for the offence of a person that wills or orders another to do some unlawful act, as theft, murder, or the like. To command any one to commit burglary, is felony-excluded clergy; and he who commands the doing any act that is unlawful, is accessory to it and all the consequences thereof, if executed in the same manner as commanded; though not where it varies, or where the commander revokes the command. In trespasses, &c. a master shall be charged with the acts of his servant done by his command: however, servants shall not be excused for committing any crime when they act by command of their masters, who have no such power over them as to enforce such commandments. The commands of infants or feme covert are void. The ten commandments given to Moses was 1494 years before Christ.

COMMENDAM, in the ecclesiastical law, the trust or administration of the revenues of a benefice, given either to a layman, to hold, by way of depositum, for six months, in order to repairs, &c. or to an ecclesiastic, or beneficed person, to perform the pastoral duties till the benefice is provided with a regular incumbent.

COMMENSURABLE, among geometers, an appellation given to such quantities as are measured by one and the same common measure: thus if the line

A  be equal to eight, and the line B  be equal to 4 inches, these two lines will be commensurable, since the same common measure 2 measures them both.

COMMENSURABLE NUMBERS, whether integers or fractions, are such as can be measured or divided by some other number, without any remainder: such are 12 and 18, as being measured by 6 or 3.

COMMENSURABLE in *Power*, is said of right lines, when their squares are measured by one and the same space or superficies.

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COMMENTARY, or **COMMENT**, in matters of literature, an illustration of the difficult or obscure passages of an author.

COMMENTARY, or **COMMENTARIES**, a kind of history or memoirs of certain transactions, wherein the author had a considerable hand: such are the *Commentaries* of Cæsar.

COMMERCE, a term used for buying, selling; or bartering of all manner of goods or commodities, in order to profit by the same.

COMMINUTION, the breaking or rather grinding a body into very small particles.

COMMISSARY, in the ecclesiastical law, an officer of the bishop, who exercises spiritual jurisdiction in places of a diocese so far from the episcopal see, that the chancellor cannot conveniently call the people to the bishop's principal consistory court.

COMMISSARY, in a military sense, is of three sorts.

COMMISSARY General of the Musters, an officer appointed to muster the army when the general thinks proper, in order to know the strength of each regiment and company, to receive and inspect the muster-rolls, and to keep an exact state of the strength of the army.

COMMISSARY General of the Stores, an officer in the artillery, who has the charge of all the stores, for which he is accountable to the office of ordnance.

COMMISSARY General of Provisions, an officer who has the inspection of the bread and provisions of the army.

COMMISSION, in common law, the warrant or letters-patent, which all persons, exercising jurisdiction, have to empower them to hear or determine any cause or suit; as the commission of the judges, &c.

COMMISSIONER of the Navy. See **NAVY**.

COMMISSIONER, one authorized by commission, letters-patent, or other lawful warrant, to examine any matters, or execute any public office, &c.

COMMITMENT, in law, the sending of a person, charged with some crime, to prison, by warrant, or order.

COMMITTEE, one or more persons to whom the consideration of a matter is referred, either by some court, or by the consent of parties, to whom it belongs.

COMMITTEE of Parliament, a certain number of members appointed by the house for the examination of a bill,

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making report of an inquiry, process of the house, &c.

COMMODITY, in a general sense, all sorts of wares, goods, and merchandises whatsoever, that a person deals or trades in.

Staple COMMODITIES, such wares and merchandises as are commonly and readily sold in a market, or exported abroad; being, for the most part, the proper produce or manufacture of the country.

COMMODORE, in the royal navy, an officer who commands a fleet or squadron of ships of war, and is distinguished by wearing a broad pennant; i. e. a small red flag which tapers to a point: the office of commodore is only invested in a captain in the navy for a certain time, during which he has the rank of brigadier-general, of which at the expiration of such office, he is deprived.

COMMON, something that belongs to all alike, in contradistinction to proper, peculiar, &c. Thus the earth is said to be our common parent.

COMMON LAW, that body of rules received as law in England, before any statute was enacted to alter the same.

COMMON-PLACE BOOK, *Adversaria*, a register of what things occur worthy to be noted in the course of a man's study, so disposed, as that among a number of subjects, any one may be easily found. Several persons have their several methods of ordering them; but that which is best recommended, is Mr. Locke's method, which he has published in a letter to Mr. Toifnard, determined thereto by the great conveniency and advantage he had found from it in twenty years experience.

COMMON-PLEAS is one of the king's courts now held constantly in Westminster-Hall, but anciently was moveable. This court was established in 1215.

COMMON, in law, that soil, the use of which is common to this or that town or lordship.

COMMON-PRAYER, the liturgy in the church of England. It was published in English, with the authority of parliament, in 1548.

COMMON, in grammar, denotes the gender of nouns which are equally applicable to both sexes: thus *parents*, a parent, is of the common gender.

COMMON, in geometry, is applied to an angle, line, or the like, which belongs equally to two figures.

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COMMONS, or *House of COMMONS*, the lower house of parliament. See PARLIAMENT.

COMMONS, or **COMMONALITY**, likewise signifies the whole body of the people under the degree of a baron; whether knights, gentlemen, burgesses, yeomen, &c.

COMMONWEALTH, the same with republic. See REPUBLIC.

COMMOTION, an intestine motion in the parts of any thing.

COMMUNICATION, in a general sense, the act of imparting something to another.

COMMUNICATION, the connection of one thing with another; or the passage from one place to another: thus a gallery is a communication between two apartments.

COMMUNICATION of Motion, in philosophy, the action of a moving body, whereby a body at rest is put in motion, or a body already in motion is accelerated.

The Laws of Communication of Motion. Sir Isaac Newton demonstrates, that action and re-action are equal and opposite; so that one body striking against another, and thereby occasioning a change in its motion, does in itself undergo the same change in its own motion, the contrary way.

Hence a moving body striking directly against another at rest, the one loses just as much of its motion as it communicates to the other, and they will proceed with the same velocity as if grown into one mass.

Therefore, if the body in motion be triple that at rest, against which it strikes, it will lose a fourth part of its motion; and whereas, before it would run over a line of 20 feet, in a given time, it will now only run over 15; that is, it will lose a fourth part of its velocity.

If a moving body strike another already in motion, the first will augment the velocity of the latter, but will lose less of its motion than if the latter had been absolutely at rest.

Thus if a body in motion be triple of another at rest, and strike against it with 32 degrees of motion, it will communicate 8 degrees of its motion to the other, and retain 24 to itself. If the other had already 4 degrees of motion, the first would only communicate 5, and retain 27; since those five were sufficient, in regard to the inequality of the bodies, to make them proceed with equal velo-

After the same manner may be determined the other laws of communication in bodies perfectly hard, and void of all elasticity. But all hard bodies, that we know of, have an elastic power, and the laws are different and much more intricate in elastic bodies.

If a body happen to decline out of the way, when moved by another, so as to leave a free passage to the body by which it was moved; yet that will only proceed with the velocity which it had after its communication with the other, not with that it had before. It being a rule that every thing endeavours to persevere, not in the state wherein it was formerly, but in that wherein it was at that juncture: therefore, a body that has already lost part of its motion by its meeting with another, may still lose more by a second and a third; so as at length to become perfectly at rest.

Hence, first, if two unequal homogeneous bodies move in a right line with the same velocity; the greater must preserve its motion longer than the smaller; for the motions of bodies are as their masses; but each communicates of its motion to the circumjacent bodies which touch the surface; the largest body therefore, though it has more surface than the smaller, yet, having less in proportion to its mass or quantity of matter than the smaller, will lose a less portion of its velocity every moment than the smaller.

Hence, secondly, we see the reason, why any long body, as a dart thrown longwise, continues its motion longer than when thrown transversely; it meeting fewer bodies in the way to communicate its motion to in the one case than in the other.

Hence also, thirdly, if a body be moved almost wholly within itself, so as to communicate little of its motion to the ambient bodies, it must continue its motion a long time: thus, a smooth brass ball of half a foot diameter, placed on a slender smooth axis, with a very weak impulse is found to revolve for the space of 3 or 4 hours.

Lines of COMMUNICATION, in military matters, trenches made to continue and preserve a safe correspondence between two forts or posts; or at a siege, between two approaches, that they may relieve one another.

COMMUNION, in matters of religion, the being united in doctrine and discipline; in which sense of the word, different

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different churches are said to hold communion with each other.

COMMUNION is also used for the act of communicating in the sacrament of the Lord's-supper.

COMMUNION-SERVICE, in the liturgy of the church of England, the office for the administration of the holy sacrament.

COMMUNION-TABLE, that whereon the elements of bread and wine, used in partaking of the Holy Sacrament, are placed.

COMMUNITY, a society of men living in the same place, under the same laws, the same regulations, and the same customs.

COMMUTATION, in law, the change of a penalty or punishment from a greater to a less; as when death is commuted for banishment, &c.

COMPACT, in physiology, is said of bodies which are of a close, dense, and heavy texture, with few pores, and those very small.

COMPANY, in general, denotes a number of people met together in the same place, and about the same design. With respect, however, to matters of pleasure or diversion, instead of company, we generally make use of the term party.

COMPANY, in a commercial sense, a society of merchants, mechanics, or other traders, joined together in one common interest.

COMPANY, in military affairs, a small body of foot, commanded by a captain, who has under him a lieutenant and ensign. The number of centinels, or private soldiers in a company may be from 50 to 80; and a battalion consists of thirteen such companies, one of which is always grenadiers, and posted on the right: next them stand the eldest company, and on the left the second company; the youngest company being always posted in the center.

Companies not incorporated into regiments are called irregulars, or independent companies.

COMPARATIVE, something that is compared to another.

COMPARATIVE ANATOMY, that branch of anatomy which considers the secondary objects, or the bodies of other animals; serving for the more accurate distinctions of several parts, and supplying the defects of human subjects.

COMPARATIVE DEGREE, among grammarians, that between the positive and superlative degrees, expressing any

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particular quality above or beneath the level of another.

COMPARISON, the consideration of the relation between two persons or things, when apposed and set against each other, by which we judge of their agreement or difference, and find out wherein the one has the advantage of the other.

COMPARISON of Ideas, among logicians, that operation of the mind whereby it compares its ideas one with another, in regard of extent, degree, time, place, or any other circumstance, and is the ground of relations. This is a faculty which the brutes seem not to have in any great degree. See **IDEA** and **RELATION**.

COMPARISON, in grammar, the inflection of the comparative degree. See **COMPARATIVE**.

COMPARISON, in rhetoric, a figure that illustrates and sets off one thing, by resembling and comparing it with another, to which it bears a manifest relation and resemblance, as the following figure in *Dr. Young's Revenge*.

"The maid that loves

"Goes out to sea upon a shatter'd plank,"

"And puts her trust in miracles for safety".

COMPARTITION, in architecture, the useful and the graceful disposition of the whole ground-plot of an edifice, into rooms of office, of reception or entertainment.

COMPARTMENT, or **COMPARTIMENT**, in general, a design composed of several different figures, disposed with symmetry, to adorn a parterre, a ceiling, &c.

A compartment of tiles, or bricks, is an arrangement of them, of different colours, and varnished for the decoration of a building. Compartments, in gardening, are an assemblage of beds, plats, borders, walks, &c. disposed in the most advantageous manner that the ground will admit of. Compartments, in heraldry, are otherwise called partitions. See **PARTITION**.

COMPASS, or *Mariners COMPASS*, an instrument whereby the ship's course is determined. This instrument, which is a representation of the horizon, is a circle divided into 32 equal parts, by right lines drawn from the center to the circumference, called points, or rumbs, being also divided into 360 equal parts, or degrees; and consequently the distance between, or angle formed by, any two rumbs, is equal to 11°, 15'. The four principal of these rumbs are called the cardinal

points, and take their names from the places to which they tend, viz. that which extends itself under the meridian, pointing towards the north, is called north; and its opposite one, pointing towards the south, is called south; that which is towards the right-hand, the face being directed north, is termed east; and its opposite, west. The names of the others are compounded of those, according to their situation. So careless are the generality of commanders of this most useful instrument, that almost all the compasses used on board merchant-ships have their needles formed of two pieces of steel wire, each of which is bent in the middle, so as to form an obtuse angle; and their ends, being applied together, make an accurate one; so that the whole represents the form of a lozenge; in the center of which, and of the card, is placed the brass cap. Now, if we examine a number of these cards, we shall rarely, if ever, find them all in the same direction, but they will all vary more or less, not only with regard to the true direction, but from one another.

The inconveniences attending the common structure of the needle, induced the ingenious Dr. Knight to contrive a new sea-compass, which is now used on board all the ships of war. The needle in this instrument is quite straight, and square at the ends; and consequently has only two poles, though about the hole in the middle, the curves are little confused. Needles of this construction, after vibrating a long time, will always point exactly in the same direction; and if drawn ever so little on one side, will return to it again, without any sensible difference. We may therefore conclude, that a regular parallelopiped is the best form for a needle, as well as the simplest, the holes for the caps being as small as possible.

And as the weight should be removed to the greatest distance from the center of motion, a circle of brass, of the same diameter of the card, may be added, which will serve also to support the card, which may then be made of thin paper, without any thing to stiffen it. This ring being fixed below the card, and the needle above it, the center of gravity is placed low enough to admit of the cap being put under the needle, whereby the hole in the needle becomes unnecessary.

COMPASS DIALS, small horizontal dials, fitted in brass or silver boxes, for the pocket, to shew the hour of the day,

by the direction of a needle, that indicates how to place them right, by turning the dial about till the cock or style stand directly over the needle, and point to the northward: but these can never be very exact, because of the variations of the needle itself.

COMPASS-SAW. See **SAW**.

COMPASSES, or *Pair of COMPASSES*, a mathematical instrument for describing circles, measuring figures, &c.

The principal perfection of this, as of all other compasses, consists in the easy and uniform opening and shutting of their legs; one of which may be taken out in order to make room for others.

There are now used compasses of various kinds and contrivances, accommodated to the various uses they are intended for; as;

COMPASSES of three Legs are, setting aside the addition of a leg, of the same structure with the common ones: their use being to take three points at once, and so to form triangles; to lay down three positions of a map, to be copied at once, &c.

Beam COMPASSES consist of a long branch, or beam, carrying two brass cursors, the one fixed at one end, the other sliding along the beam, with a screw to fasten it on occasion.

To the cursors may be screwed points of any kind, whether steel, for pencils, or the like. It is used to draw large circles, to take great extents, &c.

Calibar COMPASSES. See **CALIBAR**.

Clockmaker's COMPASSES are joined like the common compasses, with a quadrant, or bow, like the spring compasses; only of different use, serving here to keep the instrument firm at any opening. They are made very strong, with the points of their legs of well tempered steel, as being used to draw lines on paste-board or copper.

Cylindrical and Spherical COMPASSES, consist of four branches, joined in a center, two of which are circular, and two flat, a little bent on the ends: their use is to take the diameter, thickness, or calibar of round or cylindric bodies; such as cannons, pipes, &c. See **CALIBAR COMPASSES**.

German COMPASSES have their legs a little bent outwards, towards the top; so that when shut, the points only meet.

Lapidary's COMPASSES, a piece of wood, in form of the shaft of a plane, cleft at top, as far as half its length; with

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with this they measure the angles, &c. of jewels and precious stones, as they cut them.

Proportional COMPASSES, such as have two legs, but four points, which, when opened, are like a cross, as not having the joint at the end of the legs like common compasses: some of these have fixed joints, others moveable ones; upon the legs of the latter of which are drawn the lines of chords, sines, tangents, &c.

Their use is to divide lines and circles into equal parts; or to perform the operations of the sector at one opening of them.

Spring COMPASSES, or **DIVIDERS**, those with an arched head, which by its spring opens the legs; the opening being directed by a circular screw, fastened to one leg, and let through the other, worked with a nut. These compasses are made of hardened steel.

Trifecting COMPASSES. They consist of two central rules, and an arch of a circle of 120 degrees, immovable with its radius, which is fastened with one of the central rules, like the two legs of a sector, that the central rule may be carried through all the points of the circumference of the arch. The radius and rule should be as thin as possible; and the rule fastened to the radius, should be hammered cold, to attain the greater elasticity; and the breadth of the central rule should be triple that of the radius: there must be also a groove in this rule, with a dove tail, fastened on it for its motion, and a hole in the centre of each rule. The use of this instrument is to facilitate the trifsection of angles geometrically: and it is said to have been invented by M. Targen for that purpose.

Turn up COMPASSES. The body of this instrument is like the common compasses; but towards the bottom of the legs, without side, are added two other points, besides the usual ones: the one whereof carry a drawing pen-point, the other a port-crayon, both adjusted so as to turn round, and so to be in the way of use, or out of it, as occasion requires. These compasses have been contrived in order to save the trouble of changing the points.

COMPENDIUM, in literary matters, much the same with epitome, or abridgement. See **ABRIDGEMENT**.

COMPENSATION, an action whereby any thing is admitted as an equivalent to another.

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COMPENSATION, in the civil law, a sort of right, whereby a debtor, sued by his creditor for the payment of a debt, demands that the debt may be compensated with what is owing him by the creditor, which in that case is equivalent to payment.

COMPLEMENT, in astronomy, the distance of a star from the zenith; or the arch comprehended between the place of the star above the horizon and the zenith.

COMPLEMENT, in geometry, is what remains of a quadrant of a circle, or of 90°, after any certain arch has been taken away from it. The sine of the complement of an arch is called the co-sine, and that of the tangent, the co-tangent, &c.

COMPLEMENT of the Course, in navigation, the number of points the course wants of 90°, or eight points, viz. of a quarter of the compass. See **COURSE**.

COMPLEX Ideas, in logic, such as are compounded of several simple ones. See **TERM** and **IDEA**.

COMPLEX Proposition, that which has at least one of its terms complex, or such as contains several members, as casual propositions: or it is several Ideas offering themselves to our thoughts at once, whereby we are led to affirm the same thing of different objects, or different things of the same object.

COMPLEX Terms, in logic, that which requires more than one word to signify one thing; or when one word implies several things.

Some terms are complex in words, but not in sense.

Some terms are complex in sense, but not in words; so when we say an army, a forest, we mean a multitude of men, of trees; and almost all our moral ideas, as well as many of our natural ones, are expressed in this manner; religion, piety, loyalty, knavery, these, include a variety of ideas in each term.

There are other terms which are complex both in words and sense; so when we say, a fierce dog; or a pious man, it excites an idea, not only of those two creatures, but of their peculiar characters also.

Among the terms that are complex in sense, but not in words, we may reckon those simple terms which contain a primary and secondary idea in them; as when we hear our neighbour speak that which is not true, we say to him, this is

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not true, or this is false, we only convey to him the naked idea of his error; this is the primary idea: but if we say it is a lye, the word lye carries also a secondary idea in it, for it implies both the fallhood of the speech, and our reproach and censure of the speaker.

COMPLEXION, *Complexio*, among physicians, the temperament, habitude, and natural disposition of the body, but it usually means the colour of the face and skin.

COMPLEXUS, in anatomy, a broad and pretty long muscle, lying along the back-part and side of the neck. See **MUSCLES**.

COMPLEXUS MINOR, in anatomy, a narrow, long, and slender muscle, lying along the inside of the neck. See **MUSCLE**.

COMPLICATION, the blending, or rather interweaving, of several different things together: thus a person afflicted with several disorders at the same time, is said to have a complication of diseases.

COMPONED, COMPONE, or GO-BONY, in heraldry, is said of a bordure made up of angular parts, or chequers, of different colours.

COMPOSITE, in general, denotes something compounded, or made up of several others united together.

COMPOSITE ORDER, in architecture, the last of the five orders of columns; so called because its capital is composed out of those of the other columns, borrowing a quarter-round from the Tuscan and Doric, a row of leaves from the Corinthian, and volutes from the Ionic. Its corniche has simple modillions or dentils. It is also called the Roman or Italian order, as having been invented by the Romans. By most authors it is ranked after the Corinthian, either as being the next richest, or the last invented.

For the parts of this order, see **BASE, CAPITAL, COLUMN, ENTABLATURE, FRIEZE, PEDESTAL, &c.**

COMPOSITION, *Compositio*, the uniting and putting together several things, so as to form one whole, called a compound.

COMPOSITION of Ideas, an act of the mind, whereby it unites several simple ideas into one conception, or complex idea.

COMPOSITION, in grammar, the joining of two words together; or prefixing a particle to another word, to augment, diminish, or change its signification. See **WORD**.

COMPOSITION, in logic, a method of reasoning, whereby we proceed from

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some general self-evident truth, to other particular and singular ones.

COMPOSITION, in music, the art of disposing musical sounds into airs, songs, &c. in one or more parts, to be sung by a voice, or played on instruments. See **MUSIC** and **SONO**.

COMPOSITION, in oratory, the coherence and order of the parts of a discourse. To composition belong both the artful joining of the words; whereof the style is formed, and whereby it is rendered soft and smooth, gentle and flowing, full and sonorous; or the contrary; and the order, which requires things first in nature and dignity, to be put before those of inferior consideration.

COMPOSITION, in painting, consists of two parts, invention and disposition; the first is the choice of the objects which are to enter into composition of the subject the painter intends to execute, and is either simply historical or allegorical. The other very much contributes to the perfection and value of a piece of painting.

COMPOSITION, in pharmacy; the method of mixing and compounding medicines of different qualities, so that they may assist each other's virtues, or supply each other's defects.

COMPOSITION, in commerce, a contract between an insolvent debtor and his creditors, whereby the latter accept of a part of the debt in compensation for the whole, and give a general acquittance.

COMPOSITION, in printing, commonly termed composing, the arranging of several types, or letters, in the composing stick, in order to form a line; and of several lines ranged in order, in the galley, to make a page; and of several pages to make a form.

COMPOSITION of Motion, or **FORCES**, an assemblage of several directions of motion resulting from several powers acting in different, though not opposite directions.

The doctrine of composition and resolution of motion is founded on Sir Isaac Newton's Second Law of Nature, viz. "The change of motion is always proportionable to the moving force impressed, and is always made according to the right line in which that force is impressed."

COMPOSITION of Proportion. See **PROPORTION**.

COMPOST, in husbandry and gardening, several sorts of soils, or earthy matter, mixed together, to make a manure for assisting the natural earth in the work

work of vegetation, by way of amendment or improvement. Composts are various, and ought to be different, according to the different nature of the soils which they are designed to meliorate, and according as the land is either light, sandy, loose, heavy, clayey, or cloddy. A light, loose land requires a compost of a heavy nature, as the scouring of deep ditches, ponds, &c. so, on the other hand, land that is heavy, clayey, or cloddy, requires a compost of a more sprightly and fiery nature, that will insinuate itself into the lumpish clods, which, if they are not thus managed, would very much obstruct the work of vegetation. See CLAY, &c.

COMPOSTO, in music, means compounded or doubled, as a fifteenth is an octave doubled, or an octave is compounded of a fifth and a fourth.

COMPOUND, in a general sense, an appellation given to whatever is composed or made up of different things: thus we say, a compound word, compound sound, compound taste, compound force, compound spirit, &c. See WORD, SOUND, &c.

COMPOUND FLOWER, one consisting of several distinct lesser flowers, or corollulæ, each furnished with a style, stamina, &c. See FLOWER.

COMPOUND-INTEREST. See INTEREST.

COMPOUND-MOTION, that effected by the concurring action of several different powers. See COMPOSITION of Motion.

COMPOUND-NUMBERS, those which may be divided by some other number besides unity, without having any remainder: such are 18, 20, &c. the first being measured by the numbers 2, 6, or 9; and the second, by the numbers 2, 4, 5, 10.

COMPOUND PENDULUM, QUANTITIES, RATIO, &c. See PENDULUM, QUANTITY, RATIO, &c.

COMPOUNDER, in general, denotes one who compounds several things together.

COMPREHENSION, or SYNECDOCHE, a trope or figure in rhetoric, which puts the name of the whole for a part, or of a part for the whole.

COMPRESS, in surgery, a bolster of soft linen cloth, folded in several doubles; frequently applied to cover a plaster, in order not only to preserve the part from the external air, but also the better to retain the dressings or medicines.

COMPRESSED LEAF, among botanists, one with a mark or impression on both sides. See LEAF.

COMPROMISE, a treaty, or contract, whereby two contending parties establish arbitrators, to terminate their difference amicably.

COMPTROLLER, See CONTROL-
LER.

COMPUNCTION, in theology, an inward grief of mind for having offended God.

COMPURGATOR, in law, one that by oath justifies or clears another's innocence.

COMPUTATION, in a general sense, the manner of estimating time, weights, measure, monies, or quantities of any kind.

COMPUTO, in law, a writ to compel a bailiff, receiver, or accountant, &c. to deliver up his accounts.

CONARION, or CONOIDES, a name for the pineal gland, a small gland about the bigness of a pea, placed in the upper part of that hole in the third ventricle of the brain, called the anus, and tied by some fibres to the nates. See BRAIN.

CONCAVE, an appellation used in speaking of the inner surface of hollow bodies, but more especially of spherical ones.

CONCAVE-GLASSES, such as are ground hollow, and are usually of a superficial figure, tho' they may be of any other, as parabolical, &c. All objects seen through concave glasses, appear erect and diminished. The confused appearance of a point, through any concave glass, proceeds from the too great divergency of those rays which fall on the eye: wherefore, since the more remote the eye is from the glass, the less will the rays diverge; then the further the eye is from the concave glass, the more distinct will be the appearance of any object through it, though the more faint.

The apparent place of objects seen through concaves is always brought nearer to the eye, which is the reason they help short-sighted persons, or such as can see distinctly only those objects that are very near them. See FOCUS, LENS, and MIRROR.

CONCENTRATION, the bringing things nearer a center. Hence the particles of salt, in sea water, are said to be concentrated; that is, brought nearer each other, by evaporating the watery part: thus, also, wine is said to be concentrated, when its watery parts are separated in the form of ice by frost.

CONCENTRIC, in mathematics, something that has the same common center with

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with another: it stands in opposition to excentric.

CONCEPTION, among physicians, &c. the first formation of an embryo in the womb. See **GENERATION** and **PREGNANCY**.

Immaculate CONCEPTION, a festival in the Romish church, observed on the 8th of December, in commemoration of the holy virgin's having been conceived and born immaculate, or without original sin. The immaculate conception of the Virgin, though reckoned a pious opinion, is no article of faith in the Romish church.

CONCEPTION of our Lady, a religious order in Portugal, founded in the XVIIth century. This order has since passed into Italy, and got footing in Rome and Milan.

CONCEPTION, in logic. See **APPREHENSION**.

CONCERT, or **CONCERTO**, in music, a number or company of musicians, playing or singing the same piece of music or song at the same time. A concerto for any instrument, as organ, harpsichord, violin, &c. is a piece of music, wherein either of those instruments has the greatest part; or in which the performance is partly alone, and partly accompanied by the other parts.

CONCERTANTE, those parts of a piece of music that sing or play throughout the whole piece, either alone, or accompanied, to distinguish those parts that only play in particular places.

CONCERTATO intimates the piece of music to be composed in such a manner, as that all the parts may have their recitatives, be it for two, three, four, or more voices or instruments.

CONCERTO GROSSI, the grand chorus of a concert.

CONCESSI, in law, a term frequently used in conveyances. Its effect is to create a covenant, as *dedi* does a warranty.

CONCESSION, in rhetoric, a figure, whereby something is freely allowed, that yet might bear dispute, to obtain something that one would have granted to him, and which he thinks cannot fairly be denied.

CONCHA, a genus of bivalve shells, the animal inhabiting which is called *tethys*. See **TETHYS**.

CONCHA, in anatomy, the larger cavity of the external ear, situated before the *meatus auditorius*, or passage into the internal ear.

CONCHOID, or **CONCHILIS**, in geometry, a curve line, which always ap-

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proaches nearer a straight line to which it is inclined, but never meets it.

CONCHYLLA, a general name for all kinds of petrified shells, as limpets, cochlea, nautili, conchæ, lepadæ, &c.

CONCINNOUS SYSTEM, in music. A system is said to be concinnous, when its parts, considered as simple intervals, are concinnous; and are besides placed in such an order between the extremities, as that the succession of sounds, from one extreme to the other, may have an agreeable effect.

CONCLAVE, the place in which the cardinals of the Romish church meet, and are shut up, in order to elect a pope. The conclave is a range of small cells, ten feet square, made of wainscot: these are numbered, and drawn for by lot. They stand in a line along the galleries and hall of the Vatican, with a small space between each. Every cell has the arms of the cardinal over it. The conclave is not fixed to any one determinate place, for the constitutions of the church allow the cardinals to make choice of such a place for the conclave as they think most convenient; yet it is generally held in the Vatican. The conclave is strictly guarded by troops: neither the cardinals, nor any person shut up in the conclave, are spoke to, but at the hours allowed of, and then in Italian or Latin; even the provisions for the conclave are examined, that no letters be conveyed by that means from the ministers of foreign powers, or other persons who may have an interest in the election of the pontiff.

CONCLAVE is also used for the assembly or meeting of the cardinals shut up for the election of a pope.

CONCLUSION, in logic, the consequence or judgment drawn from what was asserted in the premises. See **SYLLOGISM**.

CONCOCTION, in medicine, the change which the food undergoes in the stomach, &c. to become chyle. See **CHYLE**, **CHYLIFICATION**, and **DIGESTION**.

CONCOMITANT, in theology, something that accompanies or goes along with another.

CONCORD, in grammar, that part of construction called *syntax*, in which the words of a sentence agree; that is, in which nouns are put in the same gender, number, and case; and verbs in the same number and person with nouns and pronouns.

CONCORD, in music, the relation of two sounds that are always pleasing to the ear,

ear, whether applied in consonance or in succession.

If two simple sounds have such a relation, or difference of tune, as that, when mixed together, they form a compound sound, which agreeably affects the ear, that relation is denominated concord; and whatever two sounds agree in consonance, the same will follow each other agreeably, or be pleasing in succession. The reverse of a concord is a discord, being all the relations or differences of tune that are grating to the ear.

Concord and harmony are, in fact, the same thing, though by custom they are applied differently, harmony expressing the agreement of a greater number of sounds than two in consonance; besides, harmony always implies consonance; but concord is sometimes applied to succession, though never but when it will make a pleasing consonance. The differences of tune take their rise from the different proportions of the vibrations of a sonorous body, that is, of the velocity of those vibrations in their recourses; the more frequent those recourses are, the more acute is the tune, & *vice versa*. But the essential difference between concord and discord lies more remote: there does not appear any natural aptitude in two sounds of a concord to give a pleasing sensation, more than in two of a discord; these different effects must be resolved into the divine will.

In short the whole that is certainly known with respect to concord may be summed up in this definition: concord is the result of a frequent union, or coincidence of the vibrations of two sonorous bodies, and consequently of the undulating motions of the air, which, arising from these vibrations, are similar and proportionable to them; which coincidence, the more frequent it is, with regard to the number of vibrations of both bodies, performed in the same time, *ceteris paribus*, the more perfect is that concord: till the infrequency of the coincidence, in respect of one or both the motions, commence discord.

CONCORDANCE, a kind of dictionary of the bible, explaining the words thereof in alphabetical order, with the several books, chapters, and verses quoted, in which they are contained.

CONCRETE, in natural philosophy and chemistry, signifies a body made up of different principles, or any mixed body: thus a soap is a factitious concrete, or a body mixed together by art; and antimony is a natural concrete, or a mixed body, compounded in the bowels of the earth.

CONCRETE, in logic, is used in contradistinction to abstract; for example, when we consider any quality, as whiteness, inherent in any subject, as, suppose, in snow: if we say the snow is white, then we speak of whiteness in the concrete; but if we consider whiteness by itself, as a quality that may be in paper, in ivory, and in other things, as well as in snow, we are then said to consider, or to take it in the abstract. See ABSTRACT.

CONCRETE NUMBERS, those numbers which are applied to express or denote any particular subject, as two men, three pounds, two thirds of a shilling, &c. whereas if nothing be concreted with the number, it is taken abstractly, or universally. Thus three signifies an aggregate of three units; let these units be men, pounds, or whatever else you please.

CONCRETION, the uniting several small particles of a natural body into sensible masses, or concretes, whereby it becomes so and so figured and determined, and is indued with such and such properties. See CONCRETE.

CONCUPISCENCE, according to divines, lust after carnal things, inherent in the nature of man ever since the fall.

CONDEMNATION, the act of giving judgment, or pronouncing sentence against a person subjected thereby to some penalty or punishment. See SENTENCE and PUNISHMENT.

CONDENSATION, the act whereby a body is rendered more dense, compact, and heavy. Condensation is, by most writers, distinguished from compression, in regard the latter is performed by some external violence; whereas the former is the action of cold.

CONDENSER, a pneumatic engine, or syringe, whereby an uncommon quantity of air may be crowded into a given space; so that sometimes ten atmospheres, or ten times as much air as there is at the same time, in the same space, without the engine, may be thrown in by means of it, and its egress prevented by valves properly disposed. See plate XII. fig. 7.

It consists of a brass cylinder, wherein is a moveable piston; which being drawn out, the air rushes into the cylinder through a hole provided on purpose; and when the piston is again forced into the cylinder, the air is driven into the receiver through an orifice, furnished with a valve to hinder its getting out.

CONDITION, in the civil law, a clause of obligation stipulated as an article of a treaty or contract; or in a donation

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of testament, legacy, &c. in which last case a donee does not lose his donative, if it be charged with any dishonest or impossible conditions.

CONDITION, in common law, a restriction annexed to an act, qualifying or suspending the same, in rendering its effect precarious and uncertain.

CONDITIONAL, not absolute, but subject to conditions.

Conditional legacies are not due till the conditions are accomplished.

CONDITIONAL CONJUNCTIONS, in grammar, those which serve to make propositions conditional. *As, if, unless, provided, &c.*

CONDITIONAL PROPOSITIONS, in logic, such as consist of two parts connected together by a conditional particle.

CONDUCT, or *Safe CONDUCT*, a security, granted to an enemy, under the great seal of a prince that he may pass without being molested.

CONDUCTOR, in surgery, an instrument which serves to conduct the knife in the operation of cutting for the stone, and in laying up sinuses and fistulas. It is also called a gorget. See **STONE**.

CONDUCTORS, in military affairs, assistants given to the commissary of the stores to receive or deliver out stores to the army, to attend at the magazines by turns when in garrison, and to look after the ammunition-waggons in the field.

CONDUIT, a canal or pipe, for the conveyance of water, or other fluid.

CONDYLOMA, in medicine, a tubercle or callous eminence which arises in the folds of the anus, or rather a swelling or hardening of the wrinkles of that part.

CONDYLUS, a knot in any of the joints formed by the epiphysis of a bone. In the fingers it is called a knuckle.

CONDYLUS, in botany, signifies the joints of plants.

CONE, in geometry, a solid body, having a circle for its base, and terminated in a point or vertex.

If the axis be perpendicular to the base, it is said to be a right cone: and if inclined or oblique, a scalenous cone. Scalenous cones are again divided into obtuse-angled, and acute-angled.

CONESSI, a sort of bark of a tree which grows on the Coromandel-coast in the East-Indies, and is recommended in a letter to Mr. Monro, in the Medical Essays, as a specific in diarrheas.

CONFECTION, in pharmacy, any thing prepared with sugar, in particular it

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imports something preserved, especially dry substances.

CONFECTS, fruit, flowers, herbs, roots, &c. when boiled and prepared with sugar or honey, to dispose them to keep, and render them more agreeable to the taste.

CONFEDERACY, in a general sense, a league or alliance between several princes and states, to carry on a common cause.

CONFEDERACY, in law, when two or more combine together to do some unlawful action.

CONFESSION, in a legal sense, an acknowledgement of some truth, though in prejudice of the person that makes the acknowledgement.

CONFESSION, among divines, the verbal acknowledgement which a Christian makes of his sins.

CONFESSIONAL, or **CONFESSIONARY**, a place in churches under the great altar, where the bodies of deceased saints, martyrs, and confessors, were deposited.

This word is also used by the Romanists for a desk, or a kind of a closet in the church where the confessor takes the confessions of the penitents.

CONFESSOR, in the Romish church, a priest impowered to receive the confessions of penitents, and to give them absolution.

CONFIGURATION, the outward figure which bounds bodies, and gives them their external appearance; being that which, in a great measure, constitutes the specific difference between bodies.

CONFIRMATION, the act of ratifying or rendering a title, claim, report, or the like, more sure and indisputable.

CONFIRMATION, in law, a conveyance of an estate, or right in *esse*, from one man to another, whereby a voidable estate is made sure and unavoidable, or a particular estate is encreased, or a possession made perfect.

CONFIRMATION, in rhetoric, the third part of an oration, wherein the orator undertakes to prove the truth of the proposition advanced in his narration; and is either direct or indirect.

Direct confirms what he has to urge for strengthening his own cause. Indirect, properly called confutation, tends to refute the arguments of his adversaries.

CONFIRMATION, in theology, the ceremony, of laying on the hands, for the conveyance of the Holy Ghost.

CONFISCATION, in law, the adjudication of effects to the public treasury,

as the bodies and effects of criminals, traitors, &c. Merchandizes that are prohibited, and brought aboard, or ashore, without paying the duties, when seized, are confiscated.

CONFLAGRATION, the general burning of a city or other considerable place.

This word is commonly applied to that grand period or catastrophe of our world, when the face of nature is to be changed by a deluge of fire, as formerly it was by that of water.

CONFLUENCE, or **CONFLUX**, among geographers, the place where two rivers unite their streams.

CONFLUENT, among physicians, &c. an appellation given to that kind of small-pox wherein the pustules run into each other.

CONFUSED, an appellation given to things void of order and method, or which lie jumbled together in one heap: thus we say, a confused orator, confused vision, ideas, &c.

CONFUSION, in a general sense, is when things prior in nature do not precede, or posterior do not follow; or a perturbation of order.

CONGE d'elire, in ecclesiastical polity, the king's permission royal to a dean and chapter in the time of a vacancy, to choose a bishop; or to an abbey or priory, of his own foundation, to choose their abbot or prior.

CONGE, in architecture, a mould in form of a quarter round, or a cavetto, which serves to separate two members from one another, such as that which joins the column to the cincture, called also apophyge.

CONGELATION, freezing, or such a change produced by cold in a fluid body, that it becomes congealed.

CONGER, in zoology, the name of a species of moræna; with the upper edge of the back-fin black; called in English the sea-eel.

CONGERIES, a collection or aggregate of several particles or bodies united into one mass.

CONGLUTINATION, the gluing or fastening any two bodies together by the intermixture of a third, whose parts are unctuous and tenacious, in the nature of glue. See the article **GLUE**.

CONGREGATION, an assembly of several ecclesiasties united, so as to constitute one body.

CONGREGATION is likewise used

for assemblies of pious persons, in manner of fraternities.

CONGREGATIONALISTS, in church history, a sect of protestants who reject all church-government, except that of a single congregation. In other matters, they agree with the presbyterians.

CONGRESS, in political affairs, an assembly of commissioners, envoys, deputies, &c. from several courts, meeting to concert matters for their common good.

* **CONGREVE (WILLIAM)** esq, an eminent dramatic poet, son of William Congreve, esq. was born in Ireland, in 1672, and educated at Trinity college, Dublin; after which he began to study the law in the Middle Temple, London. His first performance was a novel, entitled *In-cognita*, or *Love and Duty reconciled*, and he soon after began his comedy of the *Old Batchelor*, which, on its being acted, procured him many considerable friends, among which was Mr. Montague, afterwards the lord Halifax, who obtained for him the post of one of the commissioners of the hackney-coaches; then gave him a place in the pipe-office, and afterwards a place in the customs, of six hundred pounds per annum, and the post of secretary to Jamaica, which brought him in seven hundred pounds a year. It is not to be wondered at, that, after such encouragement, he should soon make his appearance again on the stage, and accordingly, the year after, he brought on the *Double Dealer*. In 1695 he produced his comedy of *Love for Love*. The same year he addressed to king William an ode upon the taking of Namur. Having established his reputation as a comic writer, he resolved to attempt a tragedy, and in 1697 was acted his *Mourning Bride*, which met with great applause. He was now called off to engage in another species of writing; Mr. Jeremy Collier attacked him as a dangerous immoral author. An answer was necessary, and therefore an answer was given, under the title of *Amendments of Mr. Collier's false and imperfect Citations*, &c. It was supposed this quibble gave Mr. Congreve some distaste to the stage, yet he afterwards brought on another comedy, intitled the *Way of the World*, which not taking, completed his disgust to the theatre. He amused himself afterwards with composing original poems and translations, which he collected in one volume, and published in 1710. The greater part of the last twenty years of his life he spent in ease and retirement, but towards the end of

it, being much afflicted with the gout, which brought on a general decay, he died on the 19th of January, 1728-9, and as he had lived in the strictest intimacy with the great, they now shewed their respect to his memory; for on the 26th of January, his body was removed from his house in Surry-street in the Strand, to the Jerusalem chamber, where it lay in state, and the same evening was carried with great solemnity into king Henry the Seventh's chapel, and was interred in the abbey. The pall was supported by the duke of Bridgewater, the earl of Godolphin, lord Cobham, lord Wilmington, brigadier-general Churchill, and the honourable George Berkeley. Some time after, an elegant monument was erected to his memory, in which is a half length figure of him in white marble, placed on a pedestal of fine Egyptian marble, and enriched with emblematical devices relating to the drama. Underneath is this inscription.

"Mr. William Congreve, died January 19, 1728, aged fifty-six, and was buried near this place. To whose most valuable memory this monument is set up, by Henrietta, duchess of Marlborough, as a mark how dearly the members the happiness she enjoyed in the sincere friendship of so worthy and honest a man; whose virtue, candour, and wit, gained him the love and esteem of the present age; and whose writings will be the admiration of the future."

CONGRUITY, in the schools, a suitability or relation of agreement between things.

CONGRUITY, in geometry, is applied to figures, lines, &c. which being laid upon each other, exactly agree in all their parts, as having the very same dimensions.

CONIC-SECTIONS, curves formed from the section of a cone by a plane. The curves generally called conic-sections are three, viz. the ellipsis, parabola, and hyperbola; for though the triangle and circle are formed from the section of a cone, they are not usually considered in that capacity. All diameters in a circle and ellipsis intersect one another in the center of the figure within the section. In the parabola they are all parallel amongst themselves and to the axis; but in the hyperbola they intersect one another, but this without the section, in the common center of the opposite sections. For the most essential properties of the conic-sections. See **ELLIPSIS**, **HYPERBOLA**, and **PARABOLA**.

CONIFEROUS-TREES, in gardening, such as bear hard, dry seed vessels of a conical figure, consisting of several woody parts, being mostly scaly, adhering closely together, and separating when ripe.

Of this sort is the cedar of Lebanon, fir, pine, &c.

CONJUGATE DIAMETER, or *Axis of an Ellipsis*, the shortest of the two diameters, or that bisecting the transverse. See **AXIS**.

CONJUGATION, in grammar, a regular distribution of the several inflexions of verbs in their different voices, moods, tenses, numbers and persons, to distinguish them from one another. The Latins have four conjugations, distinguished by the terminations of the infinitive *are, ere, ere, and ire*; the vowels before *re* of the infinitive in the first, second, and fourth conjugations being long vowels, and that before *re* in the infinitive of the third being a short one. See **VOWEL**. The English have scarce any natural inflexions, deriving all their variations from additional particles, pronouns, &c. whence there is scarce any such thing as strict conjugations in that language.

The French grammarians reduce the number of conjugations of regular verbs in their language to that in the Latin, and these terminating in *er, re, ir, and air*.

CONJUGATION, in anatomy, is applied to a pair of nerves arising together, and serving the same operation, sensation, and motion.

CONJUNCTION, in astronomy, the meeting of two stars or planets in the same degree of the zodiac.

This conjunction is either true, or apparent. The true conjunction is when a right line, drawn from the eye through the center of one of the bodies, would pass through that of the other: in this case the bodies are in the same degree of longitude and latitude; and here the conjunction is also said to be central, if the same line, continued from the two centers thro' the eye, do also pass thro' the center of the earth. Apparent conjunction is when the two bodies do not meet precisely in the same point, but are joined with some latitude. In this case a right line, drawn through the center of the two bodies, would not pass through the center of the earth, but through the eye of the spectator: this conjunction is also called partial. The moon is in conjunction with the sun, when they meet in the same point of the ecliptic, which happens every month; and eclipses of the sun are always occasioned by the conjunction.

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conjunction of the sun and moon in or near the nodes of the ecliptic.

CONJUNCTION, in grammar, an undeclinable word, or particle, which serves to join words and sentences together, and thereby shews their relation or dependence one upon another. The conjunction, which is usually placed last in the eight parts of speech, is of great use to render the discourse smooth and fluent; and serves many good purposes in the argumentative or narrative style; but should ever be omitted where a person speaks with emotion; as only serving to weaken and enervate it. Conjunctions are of several kinds, as,

Adversative, causal, conclusive, conditional, copulative, continuative, disjunctive, and dubitative, whose names explain them sufficiently.

CONJURATION, magic words, characters, or ceremonies, whereby evil spirits, tempests, &c. are supposed to be raised, or driven away.

CONNECTION, or **CONNEXION**, the relation whereby one thing adheres to, or depends upon another.

CONNECTION, or **CONTINUITY**, in the drama, consists in the joining of the several scenes together. The connection is said to be observed, when the scenes of an act succeed one another immediately, and are so joined, as that the stage is never left empty.

CONNIVENT VALVES, in anatomy, those wrinkles, cellules, and vascules, found in the inside of the two great intestines, the ilium and jejunum:

CONNOISSEUR, a French word much used of late in English, to signify a person well versed in any thing: whence it is used for a critic, or a person who is a thorough judge of any subject.

CONOCARPUS, button-tree, in botany:

CONOID, in geometry, a solid body, generated by the revolution of a conic section about its axis.

Elliptical **CONOID**, a solid formed by the revolution of an ellipsis about one of its diameters, and more generally called a spheroid. See **PARABOLA**.

Hyperbolical **CONOID**, is generated by the revolution of an hyperbola about its axis. See **HYPERBOLA**.

CONOIDES, in anatomy, a gland found in the third ventricle of the brain, called pinealis, from its resemblance to a pine-apple. Descartes fixed the seat of the rational soul in this gland. See **BRAIN**.

CONSANGUINITY, the relation subsisting between persons of the same blood, or who are sprung from the same root.

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CONSCIENCE, in ethics, a secret testimony of the soul, whereby it approves things that are naturally good, and condemns those that are evil. When it judges of an action to be performed, it is called in the schools an antecedent conscience; and when it passes sentence on an action which is performed, it is called a subsequent conscience. When the mind is ignorant or uncertain about the moment of an action, or its tendency to good; or when there are several circumstances in the case, some of which being doubtful, render the mind dubious concerning the morality of an action, this is called a doubtful or scrupulous conscience; and if it mistakes concerning these, it is called an erroneous conscience. If the error or ignorance is involuntary or invincible, the action proceeding from that error, or from that ignorance, is reckoned innocent. But if they are the effect of negligence, or of affectation; the conduct flowing from such error is criminal. Not to follow one's conscience, though erroneous and ill-formed, some divines reckon criminal, as it is the guide of life, and to counteract it shews an incorrigible spirit; yet to follow an erroneous conscience, is likewise criminal, if the error which misled the conscience was the effect of inattention, or of any criminal passion. Some divines maintain that conscience is infallible, and hold it to be that immutable law by which God will judge men. They deny that the understanding can be the source of errors, and attribute them all to the will.

CONSECRATION, the act of devoting any thing to the service and worship of God: The Mosaic law ordained, that all the first-born; both of man and beast, should be sanctified or consecrated to God. We find also, that Joshua consecrated the Gibeonites, as Solomon and David did the Nethinims, to the service of the temple; and that the Hebrews sometimes consecrated their fields and cattle to the Lord, after which they were no longer in their power. Among the ancient christians, the consecration of churches was performed with much pious solemnity. In what manner it was done for the three first ages, is uncertain; the authentic accounts reaching no higher than the fourth, when, in the peaceable reign of Constantine, churches were every where built, and dedicated with great solemnity. The Romanists have much of pious foppery in the ceremonies of consecration; which they bestow on almost every thing, as bells, candles, books, water, oil, ashes, palms, swords, banners, pictures,

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pictures, crosses, agnus dei's, roses, children's clouts, &c. In England, churches have been always consecrated with particular ceremonies, since the year 153, the form of which was left to the discretion of the bishop. Consecration is particularly used for the benediction of the elements in the eucharist.

CONSENT of parts, in the animal economy, an agreement or sympathy, whereby one part is immediately affected, another at a distance becomes affected in the same manner.

CONSEQUENCE, in logic, the conclusion or result from reason and argument. The consequence is that other proposition in which the extremes or premises of a syllogism are joined, or separated; and is gained from what was asserted in the premises. This word, in a more restrained sense, is used for the relation or connection between two propositions, whereof one is inferred from the other.

CONSEQUENT of a Ratio, in mathematics, the latter of the two terms of a ratio, or that to which the antecedent is compared; thus in m to n , n is the consequent, and m the antecedent. See RATIO and PROPORTION.

CONSERVATOR, an officer ordained for the security of the privileges of some cities and communities, having a commission to judge of, and determine the differences among them.

CONSERVE, in pharmacy, a form of medicine, contrived to preserve the flowers, herbs, roots, or fruits, of several simples, as near as possible to what they are when fresh gathered.

Conserves are made up by beating up the thing to be preserved with sugar, viz. a triple quantity thereof to those that are most moist, and a double quantity to those that are least so.

CONSIDERATION, in law, material causes or ground of a contract, without which the party contracting would not be bound.

CONSIGNMENT, in law, the depositing any sum of money, bills, papers, or commodities in good hands; either by appointment of a court of justice, in order to be delivered to the persons to whom they are adjudged; or voluntarily, in order to their being remitted to the persons they belong to, or sent to the places they are designed for.

CONSIGNMENT of Goods, in commerce, the delivering or making them over to another: thus, goods are said to

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be consigned to a factor, when they are sent to him to be sold, &c. or when a factor sends back goods to his principal, they are said to be consigned to him.

CONSISTORY, at Rome, an ecclesiastical assembly held in the presence of the pope, for the reception of princes, or their ambassadors, for the canonization of saints, for the promotion of cardinals, and other important affairs.

CONSOLATION, a figure in rhetoric, wherein the orator endeavours to moderate the grief of another.

CONSOLE, in architecture, an ornament cut upon the key of an arch, which has a projecture, and, on occasion, serves to support little corniches, figures, busts, and vases. They are also called mutules and modillions, according to their form. Some of them are striated, others in form of cartouches, others have drops in form of triglyphs.

CONSONANCE, in music, is often used in the same sense with concord, viz. for the union or agreement of two sounds produced at the same time, the one grave and the other acute; which mingling in the air in a certain proportion, occasions an accord agreeable to the air. Notes in consonance constitute harmony, as notes in succession constitute melody. The first consonance is the octave, then the fifths, the fourths, the thirds, and sixths: the rest are multiplies, or repetitions of these.

CONSONANT, a letter that cannot be sounded without some single or double vowel before or after it.

Consonants are first divided into single and double: the double are x and z , the rest are all single, and these are again divided into mutes and liquids; eleven mutes $b, c, d, f, g, h, k, l, p, q, r$, and four liquids, m, n, r, s . Another division is into guttural, palatal, lingual, dental, and labial, from the five principal organs of the voice, viz. the throat, palate, tongue, teeth, lips; to which some add the nasal, from the nose. To find all the consonants that may be formed in any language, there needs nothing but to observe all the modifications that the sounds of speech will admit of, by which we shall have all the consonants practicable.

Queen CONSORT, the wife of a king, in contradistinction to a sovereign princess, or queen invested with supreme authority. See QUEEN.

CONSPIRACY, in law, signifies an agreement between two or more, secretly to

indict

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indict, or procure to be indicted, an innocent person of felony.

CONSPIRATORS are, by statute, defined to be such as bind themselves by oath, covenant, or other alliance, to assist one another, falsely and maliciously to indict persons, or falsely to maintain pleas.

Conspirators in treason, are those that plot against the king and government.

CONSPIRING POWERS, in mechanics, those acting in directions not opposite. See **POWER**.

CONSTABLE. Lord high constable, an ancient officer of the crowns both of England and France, whose authority was so very extensive, that the office has been laid aside in both kingdoms, except on particular occasions, such as the king's coronation. With respect to France, the jurisdiction and functions of this office are now in the marshals.

The function of the constable of England consisted in the care of the common peace of the land, in deeds of arms and matters of war. By a law of Richard II. the constable of England has the determination of things concerning wars and blazonry of arms, which cannot be discussed by the common law. The first constable was created by the Conqueror: the office continued hereditary till the thirteenth of Henry VIII. when it was laid aside, as being so powerful as to become troublesome to the king. We have also constables denominated from particular places, as constables of the Tower, of Dover-castle, of Windsor-castle, of the castle of Caernarvon, and many other of the castles of Wales.

From the lord-high constable are derived those inferior ones, since called the constables of hundreds or franchises, who were first ordained in the thirteenth of Edward I. by the statute of Winchester, which, for the conservation of peace and view of armour, appointed that two constables should be chosen in every hundred. These are what we now call high-constables, the increase of people and offences having made it necessary to appoint others under these, in every town, called petty-constables, who are of the like nature, though of inferior authority to the other. The high-constable over the whole hundred is usually chosen and sworn into his office by the justices of the peace, in their sessions; and as to petty-constables in towns, villages, &c. the right of choosing them belongs to the court-leet, though they may be elected by the parishioners. They

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are appointed yearly, and ought to be men of honesty, knowledge, and ability.

CONSTANT, an appellation given to things which remain in the same state, without changing their nature or circumstances.

* **CONSTANTINOPLE**, a city of Turkey in Europe, seated in Romania, on a neck of land advancing towards Anatolia, from which it is separated by a channel about a mile in breadth, formerly called the Bosphorus of Thrace. The sea of Marmora washes its walls on the south, and the Black Sea being on the north, renders its situation the most convenient in the universe; for it seems as if the channel of the Dardanelles, and that of the Black Sea were made on purpose to bring it the riches of all the four quarters of the world. The port or harbour is six miles in circuit, and the waters are so deep, that the largest vessels may come close to the shore without danger. This city, which was formerly called Byzantium, was first built by Paufanias, king of Sparta, though some say he only rebuilt it. It was demolished by the emperor Severus to punish the revolt of its inhabitants; but was afterwards repaired by Constantine the Great, from whom it obtained its present name. It continued after this the seat of the eastern empire for a great number of years, not without being taken and retaken by different nations till at length it fell into the hands of Mahomet II. emperor of the Turks, on the 27th of May 1423, and has been ever since in the possession of the Turks, who call it Istampol. Its form is triangular; two of its sides are washed by the sea. It may be about eighteen miles in circumference about the walls; but if the suburbs are included, it is at least twenty-six. The walls of Constantinople are very good. Those on the land side have a double range, twenty feet from each other, defended by a ditch about twenty-five feet broad. The outward wall is twelve feet high, and has two hundred and fifty low towers. The inner wall is twenty feet high, and its towers which answer to the outer, are well proportioned. The battlements, the curtains, and the port-holes are well contrived, but there is no appearance of artillery. They are built chiefly with free-stone, and there are five gates on this side. The walls from the seven towers to the seraglio, and those along the harbour, seem to be somewhat disregarded. There are seven gates from the points of the

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the seraglio to the seven towers, and eleven towards the harbour, all which are entered up an ascent. When we view the city on the outside nothing can appear more delightful; because the roofings, terrace-balconies, and gardens, form a great variety of amphitheatres, set off with the bezestans, caravanserais, seraglios, and mosques. The domes of these last are covered with lead or gilding, and with their high slender minarets or towers, adorned with crescents at the tops, appear very beautiful to those who stand at the entrance of the channel of the Black Sea.

Yet notwithstanding all this promising appearance of the outside at a distance, when you come near it your expectations are greatly balked, for in the suburb of Galata, the usual landing-place, the houses are low, and mostly built of clay and wood, so that a fire will consume thousands of them in a day. Those within the walls are inferior to the most contemptible of ours, none being above two stories high, some of rough stone, some of sun-dried brick, but most of wood, and the roofs rising, but very little are covered with tiles. But those belonging to the principal persons are flat, and adorned with trees, and flowers of beautiful colours. There are many vacant places in the city, and many rows of shops, where the women never come. The streets are generally exceeding narrow, and some are raised on the sides for the sake of cleanliness.

There are seven royal mosques in the city, which are magnificent structures, and kept in good condition. These and all the rest stand by themselves in an inclosure planted with fine trees, and adorned with pleasant fountains. Each mosque has a principal dome, with others smaller, which have a very fine effect. The minarets, from which they call people to prayers, are as high as our steeples, but very slender.

The boats used in the harbours are like Venetian gondolas, and are extremely light and pretty. This harbour opens to the east, over against Scutari. The river Licus, which falls into it, is made up of two streams, on the largest of which is a paper-mill; and the torrent is so strong, that it is of great use in cleansing the harbour. The only wind that can disturb the ships is from the east, and when that blows, it causes such a bawling among the seamen, and such a barking of the dogs, that one would think the city was going

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to be swallowed up, and is a great annoyance to the seraglio. This is near three miles in circumference, and is a kind of a triangle, whose side next the city is longest. The apartments are on the top of a hill, and the gardens below. The outside of the palace has nothing curious. The gardens are planted with cypresses and ever-green trees, to conceal the sultanas from any overlookers when they are walking in them. The apartments have been made at different times, according to the capriciousness of emperors, or their sultanas. Thus this famed palace is nothing but a cluster of houses, put together without any manner of order. The principal entrance of the seraglio is through a pavilion or gate-way; but it looks rather like a guard-house than a building belonging to a palace.

The whole seraglio is under the care of black eunuchs, who are deprived of their virility in Ethiopia, and sent from thence young. Some of these are appointed as guards to the women, and they are so vigilant, that there is no possibility of coming near them; not to mention the rashness of any such attempt, which would be punished with immediate death. When an emperor dies, his women are sent to the old seraglio in another part of the city, where they are as strictly watched as before. When the sultanas walk in the gardens, the gardeners run behind a screen, placed near the walls, and look towards the sea; for a single glance, if perceived, would cost them their lives.

CONSTAT, in law, a certificate that the clerk of the pipe and auditors of the exchequer grant at the request of any person who intends to plead or move in that court for the discharge of any thing.

CONSTELLATION, in astronomy, a system of several stars seen in the heavens, near to one another. Astronomers not only mark out the stars, but that they may better bring them into order, they distinguish them by their situation and position in respect to each other; and therefore they distribute them into asterisms, or constellations, allowing several stars to make up one constellation: and for the better distinguishing and observing them, they reduce the constellations to the forms of animals, as men, bulls, bears, &c. or to the images of some things known, as of a crown, a harp, a balance, &c. or to give them the names of those, whose memories, in consideration

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tion of some notable exploit, they chose to transmit to future ages. The division of the stars by images and figures is of great antiquity, and seems to be as old as astronomy itself: for in the most ancient book of Job, Orion, Arcturus, and the Pleiades are mentioned; and we meet with the names of many of the constellations in the writings of the first poets Homer and Hesiod. The ancients, in their division of the firmament, took in only so much as came under their notice, distributing it into forty-eight constellations; but the modern astronomers comprehend the whole starry firmament, dividing it into three regions: 1. The zodiac, containing the twelve signs. 2. All that region of the heavens that lies on the north-side of the zodiac, which contains twenty-one constellations, besides those of Antinous, and Berenice's hair. 3. That region on the southern-side of the zodiac, which contains fifteen constellations, known to the ancients, together with 12 lately added. The Galaxy, or Milky-way, is also to be reckoned among the constellations. See each constellation, and the number of stars it contains, under its proper head, *Aries, Taurus, Gemini, Cancer, &c.*

Without the compass of these constellations there are several stars which cannot be reduced to any of the forms mentioned, and these by the ancients are called Informes or Sporades; out of which some great astronomers have made new constellations, as Charles's heart, and Sobieski's shield. See *Informes and Sporades*.

CONSTIPATION, in medicine, a hardness of the belly, with great costiveness.

CONSTITUENT PART, in physiology, an essential part in the composition of any thing, differing little from what is otherwise called element or principle.

CONSTITUTION, in matters of policy, the form of government established in any country or kingdom.

CONSTITUTION, in a physical sense, that particular disposition of the human body, which results from the properties and mutual actions of the solids and fluids, and which renders them capable of exercising the functions proper and conformable to nature. An equal constitution is that wherein the four humours, blood, phlegm, bile, and melancholy, are mixed in a due proportion; and according as one or other of these predominates, the constitution is denominated sanguine, phleg-

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matic, bilious, or melancholy and atrabilious.

CONSTRUCTOR, an appellation given to several muscles on account of their constringing some of the orifices of the body.

CONSTRUCTION, in geometry, the drawing such lines, such a figure, &c. as are previously necessary for the making any demonstration appear more plain and undeniable.

CONSTRUCTION of Equations. See *Equations*.

CONSTRUCTION, in grammar, the connecting the words of a sentence according to the rules of the language. Construction is either simple or figurative, according as the parts of the discourse are placed in their natural order, or recede from that simplicity, when shorter and more elegant expressions are used than the nature of it affords.

The construction of words, called syntax, is distinguished into two parts, concord and regimen. See *Syntax, Concord, and Regimen*.

CONSUBSTANTIAL, among divines, a term denoting something of the same substance with another. Thus the orthodox believe the Son of God to be consubstantial with the Father.

CONSUBSTANTIATION, a tenet of the Romish and Lutheran churches with regard to the manner of the change made in the bread and wine in the eucharist. The divines of both professions maintain, that after consecration, the body and blood of our Saviour are substantially present, together with the substance of the bread and wine, which is called consubstantiation or impanation.

CONSUL, the chief magistrate of the Roman commonwealth.

CONSUL, at present, an officer established by virtue of a commission from the king and other princes, in all foreign countries of considerable trade, to facilitate and dispatch business, and protect the merchants of the nation.

CONSUMMATION, the end or completion of a work. Thus we say, the consummation of all things, meaning the world.

CONSUMPTION, in medicine. See *Phthisis*.

CONTACT, is when one line, plane, or body, is made to touch another; and the parts that thus touch, are called the points or places of contact. The contact of two spherical bodies, and of a tangent with the circumference of a circle, is only in one point.

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CONTEMPLATION, an act of the mind, whereby it applies itself to consider and reflect upon the works of God, nature, &c.

CONTEMPORARY, a person or thing existing in the same age with another.

CONTENT, in geometry, the area or quantity of matter or space included in certain bounds.

For the contents of vessels of different kinds. See **GAUGING**.

CONTEXT, that part of scripture or of a writing that precedes and follows the text. See **TEXT**.

CONTIGUITY, in geometry, is when the surface of one body touches that of another.

CONTIGUOUS ANGLES, in geometry, such as have one leg common to each angle, and are sometimes called adjoining angles, in contradistinction to those produced by continuing their legs through the point of contact, which are called opposite or vertical angles.

CONTINENT, in geography, a great extent of land not interrupted by seas, in contradistinction to Island, Peninsula, &c. By the relations we have of the disposition of the globe from late navigators, we may count four continents, of which there are but two well known. The first, called the ancient continent, comprehends Europe, Asia, and Africa. The second is the new continent, called America. The third, which is called the Northern, or Arctic continent, comprehends Greenland, the lands of Spitzberg, Nova Zembla, and the lands of Jesso. The fourth comprehends New Guinea, New Zealand, New Holland, and several others hitherto little known. Some authors think the two first continents are in reality only one, imagining the northern parts of Tartary to join with those of North America.

CONTINGENT, casual or uncertain.

CONTINGENT, a term of relation for the quota that falls to any person upon a division. Thus each prince in Germany, in time of war, is to furnish so many men, so much money and ammunition for his contingent.

CONTINGENT USE, in law, an use limited in a conveyance of lands which may or may not happen to vest, according to the contingency mentioned in the limitation of the use. And a contingent remainder, is when an estate is limited to take place at a time to come, on an uncertain event.

CONTINUAL CLAIM, in law, a claim made from time to time within eve-

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ry year and a day to lands, &c. which in some respect one cannot attain without danger.

CONTINUAL PROPORTION. See *Proportion*.

CONTINUANTO, a term used in a special declaration of trespass, where the plaintiff would recover damages for several trespasses in one and the same action.

CONTINUED PROPORTION, in arithmetic, that where the consequent of the first ratio is the same with the antecedent of the second; as 4 : 8 :: 8 : 16, in contradistinction to discrete proportion. See **DISCRETE**.

CONTINUED Thorough Bass, in music, that which continues to play constantly during the recitatives, and to sustain the chorus. See **CHORUS**.

CONTOUR, in painting, the out-line, or that which defines a figure. Contour with the Italian painters, signifies the lineaments of the face.

CONTOURNE, in heraldry, is used when a beast is represented standing or running with its face to the sinister side of the escutcheon, they being always supposed to look to the right, if not otherwise expressed.

CONTRABAND, in commerce, a prohibited commodity bought or sold, imported or exported, in prejudice to the laws and ordinances of a state.

CONTRACT, a mutual consent of two or more parties, who voluntarily promise and oblige themselves to do something, pay a certain sum, or the like. All donations, exchanges, leases, &c. are so many different contracts.

CONTRACT, in common law, an agreement or bargain between two or more persons with a legal consideration or cause; as where a person sells goods, &c. to another for a sum of money; or covenants, in consideration of a certain sum, or an annual rent, to grant a lease of a messuage, &c.

CONTRACT, the instrument in writing which serves as a proof of the consent granted, and the obligation passed between the parties.

CONTRACTILE FORCE, that property or power inherent in certain bodies, whereby, when extended, they are enabled to draw themselves up again to their former dimensions.

CONTRACTION, in grammar, is the reducing of two syllables into one, as *can't* for *cannot*; *heav'n* for *heaven*.

CONTRACTION, in physics, the diminishing the dimensions of a body, or the

the causing its parts to approach nearer to each other, opposed to dilatation or expansion.

CONTRADICTION, a direct opposition, wherein one thing is found directly contrary to another.

CONTRADICTORY PROPOSITIONS, in logic, such as differ both in quality and quantity, one being universal, and the other particular, which constitutes the opposition of quantity; one affirmative and the other negative, which makes the opposition in quality.

CONTRA-FISSURE, in surgery, a kind of fracture, or fissure, in the cranium, which sometimes happens on the side opposite to that which received the blow; or at least, at some distance from it. The most certain symptoms of a contra-fissure are vehement pains, vomitings, vertigo, noise in the ears, &c. If these happen, and no fracture or depression of the cranium be found where the wound was received, there is a suspicion of a contra-fissure, especially if the patient is apt to point to that part. If the symptoms be by intervals, or not to a great degree, or there be reason to believe the fissure to have reached only through one of the tables, it is sufficient to bore down to the diploe, and dress with balsamic medicines: but where any violent symptoms come on, which demonstrate an extravasation of blood in the cavity of the cranium, the trepan is to be called for without delay. See **TREPAN**.

CONTRA-INDICATION, in medicine, an indication which forbids that to be done, which the main scope of a disease points out: as if, in the cure of a disease, a vomit was judged proper; if the patient be subject to a vomiting of blood, it is a sufficient contra-indication as to its exhibition. See **INDICATION**.

CONTRAST, in painting and sculpture, an opposition or difference of position, attitude, &c. as of two or more figures, contrived to make variety in a painting, &c. as where, in a groupe of three figures, one is shewn before, another behind, and another sideways, they are said to be in contrast. The contrast is to be observed in the position of several figures, and in that of the several members of the same figure: thus, if the right arm advance farthest, the right leg is to be hindermost; if the eye be directed one way, the arm to go the contrary way, &c. the contrast must be pursued even in the drapery.

CONTRAVALLATION, or *the Line*
CONTRAVALLATION, in fortifi-

cation, a trench guarded with a parapet, and usually cut round about a place by the besiegers, to secure themselves on that side.

CONTRAYERVA, the root of a plant growing in Peru and other parts of the Spanish West-Indies, which was first brought into Europe, about the year 1581, by Sir Francis Drake. This root, freed from the fibres, which are much weaker than the tuberos part, has a light aromatic smell; and a roughish, bitterish, penetrating taste, which is not easily concealed by a large admixture of other substances. It is given, as a diaphoretic and antiseptic, in low and malignant fevers, and appears to be one of the mildest and safest of the substances of the pungent-kind commonly made use of in these intentions; not being liable to produce, though taken pretty freely, any considerable heat. The dose, in substance, is from five or six grains to half a dram and more; in decoction or infusion, from half a dram to two drams.

CONTRE, in heraldry, an appellation given to several bearings, on account of their cutting the shield contrary and opposite ways: thus we meet with contreband, contre-chevron, contre-pale, &c. when there are two ordinaries of the same nature opposite to each other, so as colour may be opposed to metal, and metal to colour.

CONTRIBUTION, the payment of each person's quota, or share in some imposition or common expence.

CONTRIBUTION, in a military sense, an imposition or tax paid by frontier-countries to an enemy, to prevent their being plundered and ruined.

CONTRITION, in theology, a sorrow for our sins, resulting from the reflection of having offended God, from the sole consideration of his goodness, without any regard to the punishment due to the trespass, and attended with a sincere resolution of reforming them. The Scripture never uses this term in this sense; but there are several passages which prove, that without contrition there is no repentance, and without repentance no remissions of sins.

CONTROL, **COMPTROL**, or **CONTROLE**, is properly a double register kept of acts, issues of the officers or commissioners in the revenues, army, &c. in order to perceive the true state thereof, and to certify the truth, and the due keeping of the acts subject to the enregistrement.

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CONTROLLER, an officer appointed to control or oversee the accounts of other officers.

CONTROLLER of the Navy. See the article **NAVY**.

CONTUMACY, in law, a refusal to appear in court, when legally summoned; or the disobedience to the rules and orders of a court having power to punish such offence.

CONTUSION, in medicine and surgery, a bruise, or a solution of continuity, produced in any part of the body by any instrument whose surface does not rise by way of edge, but in any obtuse figure; by this means a contusion is distinguished from a wound, which is a solution of continuity produced by a sharp cutting instrument.

In the cure of a contusion, we must attempt a resolution, and if possible, prevent a suppuration, but much more a gangrene. Resolution is principally performed, first, by rendering the extravasated humours fluid; secondly, by relaxing the adjacent vessels; and, thirdly, by procuring the resorption of the extravasated humours into the vessels, by evacuating these vessels, or by friction.

Bleed therefore plentifully; soon after exhibit a strong, but not inflammatory purge; let a penetrating and resolvent fomentation be applied to the part, and let warm frictions be used; mean time internal resolvents, sudorifics, and diuretics, are of considerable service.

CONVALLIUM LILIUM, lily of the valley, in botany, a genus of perennial plants, which grows wild in woods and shady places, and flowers in May. The flowers of this plant have a fragrant smell, and a penetrating bitterish taste; both which they readily impart to watery and spirituous menstrua.

It is principally from the volatile parts of these flowers that medicinal virtues have been expected in nervous and catarrhus disorders; but probably their fixed parts also have a great share in their efficacy. The flowers, dried and powdered, and thus divested of their odoriferous principle, prove strongly sternutatory. Watery or spirituous extracts made from them, given in doses of a scruple or half a dram, act as gentle stimulating aperients and laxatives; and seem to partake of the purgative virtue, as well as of the bitterness of aloes.

CONVENTICLE, a private assembly or meeting for the exercise of religion.

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CONVENTION, a treaty, contract, or agreement between two or more parties.

CONVENTION, a name given to an extraordinary assembly of parliament, or the states of the realm, held without the king's writ.

CONVENTUAL, in general denotes something belonging to a convent or monastery.

CONVERGING, or **CONVERGENT LINES**, in geometry, such as continually approach nearer one another; or whose distance becomes still less and less. These are opposed to divergent lines, the distance of which become continually greater: those lines which converge one way, diverge the other.

CONVERGING HYPERBOLA, one whose concave legs bend in towards one another, and run both the same way. See **HYPERBOLA** and **CURVE**.

CONVERGING RAYS, in optics, those rays that, issuing from divers points of an object, incline towards another, till at last they meet and cross, and then become diverging rays.

CONVERSE, in mathematics. One proposition is called the converse of another, when, after a conclusion is drawn from something supposed in the converse proposition, that conclusion is supposed; and then, that which in the other was supposed, is now drawn as a conclusion from it: thus, when two sides of a triangle are equal, the angles under these sides are equal; and on the converse, if these angles are equal, the two sides are equal. See **TRIANGLE**.

CONVERSION, in a moral and religious sense, implies a repentance of temper and conduct unworthy our nature, and unbecoming our obligations to its author, and a resolution to act a wiser and a better part for the future.

CONVERSION of Equations, in algebra, is when the quantity sought, or any part or degree thereof, being in fractions, the whole is reduced to one common denomination, and then omitting the denominators, the equation is continued in the numerators only. See **EQUATION**.

CONVERT, one who has undergone conversion. See **CONVERSION**.

Convert is more frequently used in respect of changes from one religion to another.

CONVEX, the appellation given to the exterior surface of gibbous or globular bodies, in opposition to concave: thus we say, a convex scribe, lens, mirror, superficies, &c. See **PRISM**, **LENS**, &c.

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CONVEXITY, that shape of a body, on account of which it is denominated convex. See **CONVEX**.

CONVEYANCE, in law, a deed or instrument that passes land, &c. from one person to another.

The most usual conveyances are deeds of gift, bargain and sale, lease and release, fines and recoveries, &c. The words *give and grant*, are necessary in a conveyance at common law; but though some maintain that conveyances shall operate according to the words; yet, of late, the judges have a greater regard to the passing of the estate, than to the manner by which it is passed.

CONVICT, in common law, a person found guilty of an offence by the verdict of a jury. The law implies that there must be a conviction before punishment for any offence. On a joint indictment, or information, some of the defendants may be convicted and others acquitted.

CONVICTION, in theology, expresses the first degree of repentance, wherein the sinner becomes sensible of his guilt, of the evil nature of sin, and of the danger of his own ways. See **CONTRITION**.

CONVOCAION, an assembly of the clergy of England, by their representatives, to consult of ecclesiastical matters. It is held during the session of parliament, and consists of an upper and a lower house. In the upper sit the bishops, and in the lower the inferior clergy, who are represented by their proctors, consisting of all the deans and archdeacons, of one proctor for every chapter, and two for the clergy of every diocese, in all one hundred and forty-three divines, viz. twenty-two deans, fifty-three arch-deacons, twenty-four prebendaries, and forty-four proctors of the diocesan clergy. The lower house chooses its prolocutor, whose business it is to take care that the members attend, to collect their debates and votes, and to carry their resolutions to the upper house. The convocation is summoned by the king's writ, directed to the archbishop of each province, requiring him to summon all bishops, deans, archdeacons, &c.

CONVOLVULUS, a genus of plants, distinguished by the name of bindweed in English.

CONVOY, in military matters, a body of men to guard any supply of men, money, ammunition, or provisions, conveyed by land into a town, army, or the like in time of war.

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CONVOY, in naval affairs, any fleet or navy of merchant-ships bound on a voyage, or more particularly the ship or ships appointed to conduct and defend them on their passage.

CONVULSION, *Spasmus*, in medicine, a preternatural and violent contraction of the membranous and muscular parts, arising from a spasmodic stricture of the membranes surrounding the spinal marrow, and the nerves distributed from it, and an impetuous influx of the nervous fluid into the organs of motion.

Though convulsions are terrible, they are not suddenly mortal: when they are recent, the patient young, and constitution sound, an easy and short cure is to be hoped for.

In the cure of the convulsive motions, we are first to correct the material causes which support the disorder: prepare them for an elimination, and commodiously evacuate them: then the violent and irregular commotions of the nervous parts must be allayed, and the nervous system corroborated, to prevent a relapse: the cure is not to be obtained by a great variety of drastic remedies; but rather by mild medicines, and such as are friendly to nature. If the disorder arises from a redundancy of humours, or a thickness of the blood, Hippocrates advises venesection, either in the foot or arm, to be used, or scarifications to be interposed: but these motions are rarely removed without a proper air, exercise, and regimen. Warm baths for the feet, prepared of river-water and chamomile flowers, have a singular efficacy; and also large draughts of cold simple water. If convulsions arise from excess of venery, the patient is by all means to abstain from any thing that produces commotions. If they arise from a suppression of the menses, &c. they must be removed by recalling these evacuations.

CONVULSIVE, in medicine, a term applied to those motions which naturally should depend on the will, but are produced involuntarily by some external cause, as a contraction of the muscles, &c. See **CONVULSION**.

CONYZA, flea-bane, in botany, a genus of plants. The common sort of which is recommended in the jaundice, to promote the menses, and in the strangury. Some also make an ointment of its leaves and root, which is said to cure the itch.

COOLER, among brewers, distillers, &c.

ke. a large vessel wherein certain liquors are cooled, after having been boiled.

COOLERS, in medicine, remedies which affect the organs of feeling with an immediate sense of cold, being such as have their parts in less motion than those of the organs of feeling; as fruits, and all acid liquors: or such as by a particular viscosity, or grossness of parts, give the animal fluids a greater consistency than they had before, and consequently retard their motion; having less of that intestine force on which their heat depends. Of this sort are cucumbers, and all substances producing viscosity.

COOM, or **COMB of Corn**, a dry measure containing four bushels, or half a quarter. See **MEASURE**.

CO-ORDINATE, something of equal order, rank, or degree with another.

COPAL, in natural history, a particular sort of resin brought in irregular lumps from New Spain, where it is said to be obtained from different sorts of large trees, of which eight are described by Hernandez. Solutions of copal have been greatly esteemed as varnishes, and the method of making the solution kept a secret in particular hands. Juncker informs us that it readily succeeds, if spirit of sal-ammoniac, mixed with a due proportion of oil of spike or oil of turpentine, is used for the menstruum.

COPARCENERS, otherwise called *Parceners*, such as have equal portions in the inheritance of their ancestor.

COPERNICAN-SYSTEM, or **HYPOTHESIS**, that system of the world wherein the sun is supposed at rest in the center, and the planets, with the earth, to move in ellipses round him.

The sun and stars are here supposed at rest, and that diurnal motion which they appear to have from east to west, is imputed to the earth's motion from west to east, round its axis. See the articles **EARTH** and **PLANETS**.

This system was received of old by Philolaus Aristarchus, and Pythagoras, from which last it had the name of the Pythagoric system: it was also held by Archimedes; but after him it became neglected, and even forgotten for many ages, till it was revived by Copernicus, about the year 1500, and from him named the Copernican system. According to this hypothesis, the sun is supposed very near the center of gravity of the whole system, and in the common focus of every one of

the planetary orbits: next him Mercury performs his revolution around him; next Mercury is the orbit of Venus; and next to Venus, our earth, with its attendant or secondary, the moon, performing a joint course, and in their revolution measuring out the annual period. Next the earth is Mars, the first of the superior planets; next him Jupiter, and last of all Saturn.

These and the comets are the constituent parts of the solar system, which is now received and approved as the only true one. See **COMET**, **VENUS**, **MARS**, &c.

COPERNICUS, the name of an astronomical instrument, invented by Mr. Whiston, to exhibit the motion and phenomena of the planets, both primary and secondary. It is built upon the Copernican system, and for that reason called by this name. The inventor of this instrument has wrote a treatise purposely to explain it.

COPTIC, or **COPTIC LANGUAGE**, that spoke by the Copts, being the ancient language of the Egyptians, intermixed with the Greek, and the characters of it being those of the Greek.

COPING, or **COPPING of a Wall**, in architecture, the top or covert of a wall, made sloping to carry off the wet.

COPIVI, or *Balsam of COPIVI*. See *Balsam*.

COPPELLING, or **CUPELLING**, in chemistry, the putting metallic substances into a coppel, or covered vessel, made of bone-ashes, and set in a naked fire, to try what gold or silver they will afford.

COPPER, *Venus*, in natural history, a reddish metal, easily tarnishing in a moist air, and contrasting a green or a bluish green rust. It is the most elastic and sonorous of all the metals, and the hardest of all but iron. It spreads with difficulty under the hammer, but may be extended to a great degree, drawn into fine wire, and beat into thin leaves. Its specific gravity is near nine times greater than that of water. It requires for its fusion a strong white heat, greater than that in which gold and silver melt, though not so great as that which is requisite for the fusion of iron. When melted, it is remarkably impatient of moisture, the contact of a little water occasions the melted copper to be thrown about with violence, to the great danger of the by-standers. It may nevertheless be granulated, like other metals, by cautiously pouring a very little at a time into water.

Copper is very rarely found pure in the earth. Of its ores there is a great variety, intermixed with different stony matters, generally abounding with sulphur, sometimes containing a little arsenic. These ores are often of beautiful colours, blue, red, green, yellow, variegated like the rainbow or peacock's tail, most commonly green or blue: they are of all ores the most beautiful. The lapis lazuli, from which the precious blue pigment called ultramarine is prepared, is one of the ores of this metal. Some of them contain no metal but copper; many have an admixture of others; and there are few ores of other metals without some portion of copper in them. Copper is of all metals the most difficultly obtained pure from the ore; sulphur adhering to it so strongly, as not to be expelled without long calcination. When copper and iron are blended together in the ore, the copper cannot by any method as yet known, be separated to advantage: a rich copper mine, at Lautenberg in the Hartz forest, lies on this account unworked. There are ores of copper in almost all parts of the world; in Spain, France, England, Norway, Saxony, Bohemia; but more particularly in Sweden, Hungary, and Transylvania. Japan affords a sort of copper superior to any met with in Europe. Copper is found also in a vitriolic state, dissolved in certain waters, as at Neufol in Hungary; when iron is put into the water, the dissolved copper separates; a proportionable quantity of the iron being dissolved in its place. The copper, extricated from the liquor adheres to the iron, and covers its surface with a bright cupreous crust: some have been so far imposed on as to imagine the iron, by this means, actually transmuted into copper.

COPPER-PLATES *for Engraving.*

They ought to be formed of the best copper, which can be distinguished only by examining it with regard to the qualities requisite to the constituting it good. Those qualities are that it should be very malleable, that is, capable of being spread with the hammer, or suffering itself to be rolled or drawn out to the nicest or smallest pieces; that it should nevertheless be firm, and resist even to some degree of hardness, provided no shortness of grain or brittleness attend, but that it be perfectly ductile; and that it be freed from any veins, speck, or dissimilar parts, but of an equal texture through the whole. The redness of copper is a presumptive mark of its being

good, but not an infallible one: for though it is in general a proof of the purity of the copper, yet it does not evince that the equalities may not be injured by too frequent fusions, or the calcinations it may have undergone, if, as is frequently the case, it has before been employed in forming some utensil.

The copper being chosen it must be fabricated into plates of the size demanded, the thickness of which may be in proportion of a line to plates that are a foot by nine inches. These plates must then be well forged and planished by a brazier, which should be done cold: for by managing this operation well, the porosity of the copper may be greatly removed, which is for the most obvious reasons of great consequence. When a plate is forged it should be examined which side is the most even, and the least flawed or cracked; and then the polishing may be thus performed.

First wear out the marks of the planishing hammer, with rubbing with emery finely ground; and then, the plate being washed clean, brushing it over with refined aqua-fortis; which must be suffered to lie on till the ebullition it produces begins to decrease; and then washed off, by immersing the plate in water; when it will be found to be brought to a better condition to take the burnish with more certainty, than by the laborious use of stones and the coal. The plate being brought to this state, the polishing must be finished with a steel burnisher, with which it must be strongly rubbed, till it must be as bright as a looking-glass in every part; but if, when the rest is thus bright, some particular spots appear dull, or that any lines remain, such faults should be again worked with the burnisher, till the whole be uniformly shining.

COPPERAS, a name given to the factitious green vitriol. See *Vitriol*.

COPPICE, or COPSE, a little wood, consisting of under-woods, or such as may be raised either by sowing or planting.

When they are intended to be raised from mast or seed, the ground is ploughed in the same manner as it is for corn: and either in autumn or in spring, good store of such masts, nuts, seeds, berries, &c. are to be sown with the grass, which crop is to be cut, and then the land laid for wood. They may also be planted about autumn, with young sets, or plants, in rows about ten or fifteen feet distance. If the coppies happen to grow thin, the best

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best way of thickening them is to lay some of the branches or layers of the trees, that lie nearest to the bare places, on the ground, or a little in the ground: this detained with a hook or two, and covered with fresh mould at a competent depth, will produce a multitude of suckers, and thicken a copse speedily.

COPULATION, the act, of generation, or the congress of the male and female, called also coition.

COPY, in a law sense, signifies the transcript of any original writing, as the copy of a patent, charter, deed, &c.

COPY, among printers, the manuscript, or original of a book, given to be printed.

COPY-HOLD, a tenure for which a tenant has nothing to shew but the copy of the rolls made by the steward of the lord's court.

It is called a base tenure, because the tenant holds land at the will of the lord. However, it is not simply at the will of the lord, but according to the custom of the manor by which such estate is defendible, and the tenant's heirs may inherit it; and a copy-holder, so long as he does his services, and does not break the custom, cannot be ejected by the lord; and if he be, he shall have trespass against him.

Some copyholds the tenants hold by the verge in ancient demesne; and though held by copy, yet they are a kind of freehold: and other copyholds are such as tenants hold by common tenure, called mere copyhold.

Copyhold inheritances have no collateral qualities, which do not concern the descent, as to make them assets to bind the heir, or whereof the wife may be endowed, &c. They are not extendible in execution, but are within the acts against bankrupts, and the statutes of limitation.

COPY-HOLDER, one who is admitted tenant of lands or tenements within a manor, which, time out of mind, by use and custom of the manor, have been demisable and demised to such as will take them in fee-simple or fee-tail, for life, years, or at will, according to the custom of the manor by copy of court-roll; but is generally where the tenant hath such estate either in fee or for three lives.

COR CAROLI, in astronomy, an extra-constellated star in the northern hemisphere, situated between the coma Berenices, and ura major.

COR HYDRA, a fixed star of the

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first magnitude, in the constellation of hydra.

COR LEONIS, or **REGULUS**, in astronomy, a fixed star of the first magnitude, in the constellation leo.

COR MARINUM, in natural history, a name given to the heart-fashioned echini-marini.

COR VENERIS, the name of a beautiful kind of heart shells, called also cor bovis.

CORAL, **CORALLIUM**, a hard, brittle, branched substance, resembling the stalk of a plant; generally about the thickness of goose's quill; full of knots; sometimes straight, and sometimes variously bent; both externally and internally of a deep bright red colour. It is found adhering to rocks and other bodies in the sea, particularly in the Mediterranean; covered with a soft fungous bark, in which is a great number of cells curiously divided, containing a milky juice, with apertures on the surface: this cortical part is separated while fresh and soft. It has been generally referred to the vegetable kingdom; but it is more probably the work and the nest of little animals.

Red coral is used as an absorbent of acid humours in the first passages; but that it has any virtues distinct from those of the other calcareous absorbents, or that it is superior in absorbent power to the cheaper testaceous bodies, there are no grounds to suspect.

Artificial CORAL is made of cinnabar well beaten; a layer whereof is applied on a piece of wood well dried and polished, being first moistened with fire: the whole is then again polished, and for varnish rub it over with the white of an egg.

CORAL-TREE, or **CORAL-WOOD**, in botany, the same with the corallodendron.

CORALINE, **CORALLINA**, in botany, is a genus of submarine plants, consisting of stalks and branches often beautifully ramified, and composed of joints of an oblong figure inserted into one another. It is frequently found on the English coasts, and what we use is in general of our own produce, though there is some of it brought from France and Holland. It is to be chosen fresh, of a strong smell, and greenish or reddish colour. The ancients extol much the virtues of coralline; at present, however, we use it only against worms, and it is generally mixed with worm-seed, salt of steel, and other of the known anthelmintics.

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CORAM (Captain THOMAS) a gentleman remarkably distinguished by his humanity, was born in 1668, and spent the early part of his life in the station of master of a vessel trading to our colonies. Afterwards residing in the eastern part of the metropolis, among seafaring people, where business often obliged him to come early into the city and return late, he frequently saw young children exposed in the streets, through the indigence or cruelty of their parents. This excited his compassion, and induced him to project the foundation of an hospital for foundlings. In this humane design he laboured with indefatigable diligence for seventeen years, and by his application procured a number of the nobility and gentry to patronize and carry the scheme into execution, and at length obtained the royal charter for it. He was also highly instrumental in promoting the trade of America, by procuring a bounty upon naval stores imported from our colonies. In short, a great part of his life was spent in serving the public, entirely disregarding his private interest. He died the 29th of March 1751, in the eighty-fourth year of his age, and was interred, by his own request, in the chapel of the Foundling-hospital.

CORANA, a kind of phaeolus, or kidney-bean, the down of whose pod is the common cow-itch.

CORBEL, in architecture, the representation of a basket, sometimes used to signify the vase of a tambour of the Corinthian column.

CORCHORUS, in botany, a genus of plants, denominated in English Jew-sallid.

CORD, or **CHORD**, several threads, cabled or twisted together by means of a wheel. See *Rope*.

CORD of St. Francis, a sort of rope, adorned with knots, wore by the brothers of the fraternity of St. Francis.

CORD of Wood, a certain quantity of wood for burning, so called because formerly measured with a cord. The dimensions of a statute cord of wood are eight feet long, four feet high, and four feet broad.

CORDATED, an appellation frequently given by naturalists to things somewhat resembling a heart.

CORDILIER, a Franciscan, or religious of the order of St. Francis. The Cordeliers are enjoined to live in community: those who are admitted into the

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order, are first to sell all they have and give it to the poor. The priests are to fast from the feast of all Saints till the Nativity.

CORDIAL, in medicine, whatever raises the spirits, and gives them a sudden strength and cheerfulness. To understand the operation of this upon a human body, it is necessary to consider, that a languor, or faintness, must either be the consequence of too much exercise, too long watching, or too great a hurry of the animal functions, as in some distempers; all which do so far dissipate the nervous fluid, or animal spirits, as that the solids cannot repeat, with wonted vigour, their necessary motions: or such depressions must arise from the obstruction of some natural evacuation, and generally that of perspiration; or from external cold, which lays a load upon the constitution. In both these cases the manner in which a cordial acts is the same, since it must produce its effects by adding to the springiness and force of the fibres; and as this change is most remarkable from spirituous liquors, it may be of use to examine how they come to obtain such a denomination: and this must arise from their subtilty and fineness of parts; so that the more spirituous any thing is that enters the stomach, the sooner one feels its cordial effects: for that increase of vigour which a man obtains from common food, though the most natural and durable, is not immediately obtained in such a degree, as to get the appellation of cordial, since it must pass through several comminutions before it arrive to such a fineness as to be dispersed to the nerves; whereas a spirituous substance enters into the nerves as soon as it touches them, whereby their vibrations are invigorated, and all sense of faintness removed. In like manner volatiles, the effluvia of flowers, fruits, and all things deemed cordials, operate on the organs of smelling.

CORDWAINERS, a term whereby shoemakers are denominated in the statutes, from *cordansier*, Fr.

CORDYLUS, a species of lizard, with five toes on each foot, and a taper tail, covered with denticulated squamæ, or scales.

CORED HERRING, those caught in autumn on the coast near Yarmouth; which being rolled in salt, are afterwards brought on shore to be made red Herrings.

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CORIANDER, in botany, an umbelliferous plant, with finely divided leaves; producing pale, yellowish, or brownish, striated, hemispherical seeds, which are joined by the flat sides, two together. It is annual, a native of Italy, and cultivated in some parts of England. The leaves of coriander have a strong smell, somewhat of the aromatic kind, but not a little disagreeable. The seeds also have, when fresh, a very unpleasant flavour, which by drying is altered, and becomes tolerably grateful: their taste, in this dry state, is moderately warm and slightly pungent. The dried seeds are sometimes employed as a stomachic and carminative, though less frequently than the other warm seeds.

CORIDOR, or **CORRIDOR**, in fortification. See *Covert-Way*.

CORINTHIAN, something belonging to Corinth: as Corinthian brass, Corinthian order, &c.

CORINTHIAN ORDER, in architecture, the fourth order of architecture, according to Scammozzi; but Mr. Le Clerc makes it the fifth, being the most noble, rich, and delicate of all the other five.

The Corinthian order has several characters by which it is distinguished from the rest. Its capital is adorned with two rows of leaves, between which arise little stalks, or caulicoles, of which the volutes are formed, which supports the abacus, and are sixteen in number. It has no ovolo, nor even abacus, properly speaking; for the member that goes by that name, is quite different from the abacus of the other orders, being cut with a sweep, in the middle of which is carved a rose, or other ornament.

Most modern architects pass by Vitruvius's Corinthian order, and follow that of the ancient buildings; and select from them according to their several tastes: so that the modern Corinthian is a kind of composite, differing from many of the ancient buildings, and much more from Vitruvius. Vignola and Mr. Le Clerc made the Corinthian order twenty modules in height, yet Serlio makes it but eighteen; and M. Perrault eighteen two thirds, retrenching something from nineteen of Vitruvius. M. Perrault makes the height of the shaft less than that of the Ionic, by reason of the excess of its capital.

CORK, or **CORK-TREE**, *Suber*, in botany, makes a distinct genus of trees,

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according to Tournefort; but is comprehended under the quercus by Linnaeus. In order to peel off the bark, which is the only part that constitutes the substance known by the name of cork, they make an incision round both the top and root of the tree, and another longitudinally; and when it is thus got off, they unwarpage it before the fire, and press it even with weights. This they do once in two or three years, without any prejudice to the tree; provided, however, it be done in a dry season, as rainy weather is accounted extremely prejudicial. The cork should be chosen in fine boards, all of a piece, not full of knots or chinks, of a moderate thickness, yellowish without and within, and that which cuts even. Its use is well known: in medicine it is of service to stop bleeding, being reduced to powder, or put into some astringent liquor: burned and mixed with the unguentum populeum, it is very proper for the piles. The Spaniards burn cork into an extraordinary fine black, called Spanish black, which is used for several sorts of work.

CORK, or **CORKING** of a Saddle, the pieces to which the bolsters are made fast; so called as having formerly been made of cork.

CORMORANT, in ornithology, the English name of a species of pelican, with fourteen long feathers in the tail, and the under part of the body whitish: it is a sea-fowl, almost equal to a goose in size, and feeds on fish.

CORN, the grain or seeds of plants, separated from the spike, or ear, and used for making bread. There are several species of corn, such as wheat, rye and barley, millet and rice, oats, maize and lentils, pease, and a number of other kinds. See *Wheat*, *Rye*, *Barley*, &c.

Corn is very different from fruits with respect to the manner of its preservation, and is capable of being preserved in public granaries, for pressing occasions, and of being kept for several centuries. See *Granary*.

CORN-MILL, a water or wind engine for grinding of corn. See *Mill* and *Grinding*.

CORN, in medicine and surgery, a hard tubercle, like a flat wart, growing about the feet, especially upon the joints of the toes. This disorder is not unjustly attributed to the wearing of too strait or narrow-toed shoes, which never fail to produce these tubercles.

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Various methods are used for removing these callosities of the skin and cuticle; some by knife, and others by application of emollient and caustic or eroding medicines; but which way soever they are removed, it is certainly the best to let their hard substance be first sufficiently mollified; and this may be obtained by frequently macerating them for a considerable time in warm water, and afterwards paring off their uppermost surface with a penknife: or if this does not suffice, let a plaster of green wax, gum ammoniac de saphon, &c. or a leaf of house-leek be applied and renewed every day; when these applications have been continued for some time, peel them away with your nails, or scrape them with a scalpel, but with great caution, to avoid injuring any of the subjacent tendons of the extensor muscle, which might occasion violent pains, inflammation, convulsions, a gangrene, and even death; all which have also been frequently the consequences of caustics penetrating to those parts.

CORNEA TUNICA, in anatomy, the second coat of the eye, so called from its substance, which resembles the horn of a lantern. See *Eye*.

The cornea is convex, pellucid, and divisible into various lamellæ. It is situated in the fore-part of the eye, and surrounded by the sclerótica. It has a most exquisite sense, to the end that the tears, upon the least pain, may be squeezed out of the lachrymal gland, to wash off any filth, which, by sticking to the cornea, might render it dim.

CORNEL-TREE, *Cornus*, in botany. See *Cornus*.

CORNELIAN, *Sarda*. See *Carnelian*.

CORNER, *Angulus*, in a general sense, the same with angle. See *Angle*.

CORNET, in the military art, the third commission officer in a troop of horse or dragoons, he commands in the lieutenant's absence; his principal duty being to carry the standard near the middle of the first rank of the Squadron.

CORNICHE, **CORNISH**, or **CORNICE**, in architecture, the uppermost member of the entablature of a column, as that which crowns the order. The cornice is the third grand division of the trabecation, commencing with the frieze, and ending with the cimatium. The cornice is different in different orders, there being as many kinds of corniches as there are different orders of columns. It is most plain

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in the Tuscan order. Vignola makes it consist of an ovum or quarter-round, an astragal or baguette, the reglet or fillet, the larmier, and the talon.

In the Ionic, the members are in most respects the same as in the Doric, except that they are frequently enriched with carvings, and have always dentils. See *Ionic Order*.

In the Doric, Vignola makes the capitals of the triglyphs of the frieze, with their bandeletters, a talon, mutules or dentils, a larmier with its guttæ underneath, a talon, fillet cavetto, and reglet. See *Doric Order*.

The Corinthian cornice is the richest, and is distinguished by having both modillions and dentils. See *Corinthian Order*, and *Modillion*.

In the Composite there are dentils, its mouldings carved, and there are channels under the sabbit. See *Composite Order*.

CORNICHE is also used, in general, for all little projectures in masonry or joinery, even where there are no columns, as the cornice of a chimney, beaufet, &c.

Cantaliwer **CORNICHE**, a term used by workmen for a cornice that has cantalivers underneath. See *Cantaliwer*.

Coving-**CORNICHE**, that which has a great casement or hollow in it, usually lathed and plastered upon compass-sprethets, or brackets.

Modillion **CORNICHE**, one with modillions under it. See the article *Modillion*.

CORNICULATE, or **CORNICULATED FLOWER**, one with a sharp-pointed appendage, resembling, in some degree a cock's spur.

CORNU AMMONIS, or **HAMMONIS**, in natural history, a genus of fossil shells, called serpent-stones, or snake-stones, by the vulgar. They are found of all sizes, from the breadth of a six-pence, to more than two feet in diameter.

CORNUCOPIA, or **HORN of Plenty**, among painters, &c. is represented under the figure of a large horn, out of which issues fruits, flowers, &c. Upon medals the cornucopia is given to all deities, geni, and heroes, to mark the fecundity and abundance of all the wealth procured by the goodness of the former, or the care and valour of the latter.

CORNUCOPIÆ, in botany, a genus of plants, the flower of which is univalvular; there is no pericarpium, but the corolla incloses a single turbinated seed, convex on one side, and plane on the other.

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CORNUS, the cornel tree, in botany, a genus of plants, the fruit of which is cooling, drying, and astringent, strengthens the stomach, stops all kinds of fluxes and loöfencis, and is good in fevers, especially if attended with a diarrhoea.

* **CORNWALL**, the most westerly county of England, from whence the prince of Wales takes the title of duke. It contains 161 parishes, 27 market-towns, and sends 44 members to parliament.

COROLLA, among botanists, the most conspicuous part of a flower, surrounding the organs of generation, and composed of one or more flower-leaves, most commonly called petals; to distinguish them from the leaves of the plant: according as there is one, two, or three of these petals, the corolla is said to be monopetalous, dipetalous, tripetalous, &c. See *Flower, Petal, &c.*

COROLLARY, an useful consequence drawn from something already advanced or demonstrated.

COROLLISTS, *Corollistæ*, an appellation given by Linnæus to those botanists who have arranged plants under distinct classes, according to the different form of their corollæ or flowers. See *Botany*.

CORONA, among anatomists, denotes that edge of the glans penis where the preputium begins.

CORONA, among botanists, expresses any thing growing on the head of a seed.

CORONA BOREALIS, the northern crown or garland, in astronomy, a constellation of the northern hemisphere, whose stars in Ptolemy's catalogue are eight, in Tycho's as many, and in Mr. Flamsteed's twenty-one.

CORONAL, *Coronalis*, in anatomy, the first suture of the skull. See *Suture* and *Skull*. This suture reaches transversely from the occiput to the other, and joins the os frontis with the ossa parietalia.

CORONARY VESSELS, *Vasa Coronaria*, in anatomy, certain vessels which furnish the substance of the heart with blood.

CORONARY ARTERIES, two arteries springing out of the aorta, before it leaves the pericardium.

CORONARY VEIN, a vein diffused over the exterior surface of the heart, terminating in the vena cava, whither it conveys the remains of the blood brought by the coronary arteries.

CORONER, an ancient officer of the kingdom. The office of coroners especially concerns the pleas of the crown; and they are conservators of the peace in the

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county where elected, being usually two for each county. Their authority is judicial and ministerial: judicial, where a person comes to a violent death; to take and enter appeals of murder, pronounce judgment on outlawries, &c. and to enquire into the lands, goods, and escape of murderers, treasure-trove, wreck of the sea, deodands, &c. The ministerial power is, when coroners execute the king's writs, on exception taken to the sheriff, as being party in a suit, of kin to either of the parties, or on the default of the sheriff, &c. The authority of the coroner does not terminate on the demise of the king, as that of judges, &c. does, who act by the king's commission. On default of sheriffs, coroners are to impanel juries, and to return issues on juries not appearing, &c.

CORONET. See *Crown*.

CORONET, or **CRONET** of a horse, the lowest part of the pistern, which runs round the coffin, and is distinguished by the hair joining, and covering the upper part of the hoof.

CORPORA OLIVARIA, two protuberances of the mudulla oblongata. See *Brain*.

CORPORA PYRAMIDALIA, two protuberances of the under part of the cerebellum.

CORPORA STRIATA, two protuberances in the lateral ventricles in the brain. See *Brain*.

CORPORAL, an officer under a serjeant, in a company of foot, who has charge over one of the divisions, places and relieves centinels, and keeps good order in the corps de garde: he also receives the word from the inferior rounds, which passes by his corps de garde: there are generally three corporals in each company.

CORPORATION, a body politic, or incorporate, so called, because the persons or members are joined into one body, and are qualified to take and grant, &c. Corporations may be established three different ways, viz. by prescription, letters patent, or act of parliament; but are most commonly established by patent or charter.

CORPOREAL, those qualities which denominate a body.

CORPS DE GARDE, a post in an army, sometimes under covert, sometimes in the open air, to receive a number of soldiers, who are relieved from time to time, and are to watch in their turns, for the security of some more considerable post.

Corps de garde is generally used for the men who watch in this post.

CORPS,

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CORPS, in architecture, a term to signify any part that projects or advances beyond the nakedness of a wall, serving as a ground for some decoration, or the like.

CORPULENCY, in medicine, the state of a person too much loaded with flesh or fat.

CORPUS CALLOSUM, a medullary part of the brain, which covers the whole lateral ventricles. See *Brain*.

CORPUS CAVERNOSUM, a cavernous substance surrounding the vagina, which swells in the time of coition.

CORPUS PAMPINIFORME, a body formed a little above the testicles, by the division and re-union of the spermatic veins.

CORPUS CHRISTI, a festival of the church, kept on the next Thursday after Trinity-Sunday, instituted in honour of the eucharist; to which one of the colleges in Oxford is dedicated.

CORPUSCLE, in physics, a minute particle, or physical atom, being such as compose a natural body.

CORPUSCULAR PHILOSOPHY, that way of philosophizing which endeavours to explain things, and to account for the phenomena of nature by the motion, figure, rest, position, &c. of the corpuscles, or the minute particles of matter, &c.

CORRECTION, in printing, the pointing out, or discovering the faults of a printed sheet, that they may be amended by the compositor before it is printed off. See *Printing*.

The corrections are placed on the margin of every page, opposite the line wherein the faults are found; and there are different characters used to express different corrections: thus *d* is put for *dele*, to intimate that something, as a point, letter, word, &c. dashed in that line is to be taken out. If any thing is to be inserted, the place is to be marked thus *^*, and the thing to be inserted added in the margin. When there are two or more corrections in the same line, then they are all separated in the margin by little bars thus *|*. If a space be omitted, its place is marked with a caret. When any thing is inserted, it is expressed in the margin thus *C*. When any thing is to be transposed, it is directed thus. *Extraordinary scarce ever fail of attainment, exciting envy, for Extraordinary attainments scarce ever fail of exciting envy*, and in the margin is added *in*. If Italic characters are to be changed for Roman, or *vice versa*, a line is drawn thus—under the letters,

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and *rom.* or *ital.* is written in the margin. If a space, or an *m* or *n* quadrat, stick up, and print black, it is marked in the margin with a dash, thus *|*. If a word, sentence, or paragraph is entirely omitted, the place is marked with a caret, and in the margin is put the word *out*. If the letters of a word stand too far asunder, a line is drawn under them, and in the margin is put a crooked line or hook, thus *∪*. There are many other marks used in correcting, as *cap.* for capital, *L. c.* for lower-case, &c.

CORRECTION, in pharmacy, the adding some ingredients to a composition, in order to check or moderate the violence of the operation.

CORRECTOR, in general, denotes something that mends the faults or bad qualities of others.

CORRECTOR, in medicine and pharmacy, an ingredient in a composition, which guards against or abates the force of another.

CORRELATIVE, something opposed to another in a certain relation. Thus, father and son are correlatives. Light and darkness, motion and rest, are correlative and opposite terms.

CORROSION, the action of gnawing away, by degrees, the continuity of the parts of bodies. Acids corrode most natural bodies.

CORROSION, in chemistry, an action performed on bodies, by means of proper menstrua, that produce new combinations, and a change of their form, without converting them to fluidity. See *Menstruum*.

CORROSIVES, in surgery, medicines which corrode whatever part of the body they are applied to: such are burnt-alum, white precipitate of mercury, white vitriol, red precipitate of mercury, butter of antimony, lapis infernalis, &c.

CORRUGATOR, in anatomy, a muscle which arises fleshy from the process of the os frontis, next the inner or great angle of the orbit, above the joining of the os nasi and the superior process of the os maxillare with this bone: from thence it runs obliquely outwards and upwards, and is inserted into the fleshy part of the occipito-frontalis. Some of its fibres passing through into the skin, a little higher than the middle region of the eye-brows.

CORRUPTION, the destruction, extinction, or, at least, cessation for a time, of the proper mode of existence of any natural body. See *Putrefaction*.

Whenever any body loses all or any of those accidents, which are essentially necessary to the constituting of such a particular kind, it is then said to be corrupted, or destroyed, and loses its former denomination: but nothing can be destroyed of its substance, or materiality; for as in generation, nothing of matter is produced that did not before exist, so in corruption, nothing more is lost besides that particular modification which was its form, and constituted it of such a species.

CORRUPTION of Blood, in law, an infection accruing to a man's state, attainted of felony and treason, and to his issue; for as he loses all to the prince, &c. his issue cannot be heirs to him, or to any other ancestor by him: and if he were noble, his heirs are rendered ignoble.

CORSAIR, a pirate, or person who scours the sea for plunder, with an armed vessel, without commission from any prince or power. A corsair differs from a privateer, in that the latter acts under a commission, and only attacks the vessels of those at war with the state whence he had his commission.

CORTEX Peruvianus. See *Quinquina*.

CORTEX Winteranus. See *Winteranus Cortex*.

CORTICAL, something consisting of, or resembling bark. Thus the cortical part of the brain is that which invests the internal or medullary part, like the bark of a tree. See *Brain*.

CORVUS, the raven, in ornithology, a genus of birds of the order of the pie, the distinguishing character of which is, that the beak is of a convex and cultrated figure, the mandibles nearly equal, and the base beset with hairs.

CORVUS, the raven, in astronomy, a constellation of the southern hemisphere, consisting of seven stars, according to the catalogues of Ptolemy and Ticho: but of ten, by the Britannic catalogue.

CORYMBIFEROUS Plants, in botany, such as have a compound discous flower, but their seeds destitute of down. They bear their flowers in clusters, and spreading round in the form of an umbrella. Of this kind are the common marygold, common daisy, camomile, &c.

CORYMBUS, among botanists, clusters of berries, as those of ivy, &c. It is also used by the modern botanists, to signify a compound discous flower; which does not fly away in down.

CO-SECANT, in geometry, the secant of the complement of any given arch to ninety-degrees.

CO-SINE, in trigonometry, the sine of the complement of any given arch to ninety-degrees.

COSMETIC, in medicine, a preparation for softening and whitening the skin.

COSMICAL, in astronomy, one of the poetical risings or settings of a star; which is said to rise cosmically, when it rises with the sun, or with that point of the ecliptic, in which the sun is at that time; and the cosmical setting of a star, is when it sets at sun rising.

COSMOGRAPHY, a description of the several parts of the visible world; consisting of two parts, astronomy and geography.

COSMOPOLITE, a citizen of the world, or one who has no fixed residence.

COSSET, among farmers, implies, a colt, calf, lamb, &c. brought up by hand, without the dam.

COSTAL, an epithet applied by anatomists to several parts belonging to the sides.

COSTIVENESS, among physicians, a preternatural detention of the feces, with an unusual dryness, and hardness thereof. The most effectual method of removing obstructions of this kind, are gentle purgatives; such as the purging salts, manna, lenitive electuary, and emollient clysters.

COSTMARY, a species of tanfy. See *Tanacetum*.

COSTS, in law, the expences of a suit recovered by the plaintiff together with damages.

COSTUME, a rule or precept in painting, by which the artist is enjoined to make every person and thing sustain its proper character, and not only observe the story, but the circumstances, the scene of action, the country or place, and take care that the habits, arms, manners, proportions, and the like, exactly correspond.

COSTUS, in the materia medica, a root brought from the East-Indies, about the size of the finger, of a pale greyish, or whitish colour on the outside, and yellow within. At present, one sort only is met with in the shops, and that but seldom. It has been recommended as a stomachic uterine, diaphoretic, and diuretic.

CO-TANGENT, in geometry, the tangent of the complement of the given arch to ninety-degrees.

COTICE, or **COTISE**, in heraldry, the fourth part of the bend; and, with us,

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is seldom, if ever, borne but in couples; with a bend between them.

COTINUS, in botany. See *Sumach*.

COTTAGE, a small house, without lands belonging to it.

COTTON, in commerce, a soft downy substance, growing on a tree called *gossypium* by botanists. See *Gossypium*. Cotton is separated from the seeds of the plant by a mill, and then spun and prepared for all sorts of fine works, as stockings, waistcoats, &c. With it they likewise make muslin, and sometimes it is mixed with wool, sometimes with silk, and even with gold itself. The finest sort comes from Bengal and the coast of Coromandel. Cotton makes a very considerable article in commerce, and is distinguished into cotton-wool and cotton-thread. The first is brought chiefly from Cyprus, St. John d'Acres, and Smyrna: the most esteemed is white, long, and soft. Those who buy it in bales should see that it has not been wet, moisture being very prejudicial to it. Of cotton thread, that of Damask, called cotton d'once, and that of Jerusalem, called bazas, are the most esteemed; as also that of the Antilles islands. It is to be chosen white, fine, very dry, and evenly spun. Cotton of Siam, is a kind of silky cotton in the Antilles, so called because the grain was brought from Siam. It is of an extraordinary fineness, even surpassing silk in softness. They make hose of it there preferable to silk ones, for their lustre and beauty. They sell from ten to twelve and fifteen crowns a pair, but there are very few made, unless for curiosity.

In the Swedish Transactions for the year 1747, a method is given of preparing flax, so as to resemble cotton in whiteness and softness, as well as in coherency: for this purpose, a little sea-water is directed to be put into an iron pot or an untinned copper-kettle, and a mixture of equal parts of birch ashes and quick-lime strewed upon it: a small bundle of flax is to be opened and spread upon the surface, and covered with more of the mixture, and the stratification continued till the vessel is sufficiently filled. The whole is then to be boiled with sea-water for ten hours, fresh quantities of water being occasionally supplied, in proportion to the evaporation, that the matter may never become dry. The boiled flax is to be immediately washed in the sea, by a little at a time, in a basket, with a smooth stick: when grown cold enough to be borne by the hands, it must be well rubbed, washed with soap, laid to bleach, and turned and watered every day. Repe-

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titions of the washing with soap expedite the bleaching; after which, the flax is to be beat, and again well washed: when dry, it is to be worked and carded in the same manner as common cotton, and pressed betwixt two boards for twice twenty-four hours. It is now fully prepared and fit for use: it loses in this process near one half of its weight, which is abundantly compensated by the improvement made in its quality.

Lavender COTTON. See *Santolina*.

Philosophic COTTON, a term given to the flowers of zinc, on account of their white colour, and resemblance to cotton.

Silk COTTON, in botany, the same with the xylon. See *Xylon*.

COTYLA, in anatomy, any deep cavity in a bone, in which any other bone is articulated: but it is generally used to express the acetabulum, or cavity which receives the head of the thigh-bone: It also imports a deep sinus surrounded with large lips.

COTYLEDONES, in anatomy, certain glandular bodies, adhering to the chorion of some animals: but no such substances are observable in human bodies, the placenta in the womb supplying the place thereof in women. See *Placenta*.

COUCH, in painting, a phrase used for each lay or impression of colour, either in oil or water, wherewith the painter covers his canvas, wainscot, or other matter to be painted. This word is also used for a lay or impression on any thing, to make it more firm and consistent, or to screen it from the weather. Thus, paintings are covered with a couch of varnish; a canvas to be painted must have two couches of size, before the colours are laid on; two or three couches of white lead are laid on wood, before the gold is applied. The leather-gilders lay a couch of water and whites of eggs on the leather, before they apply the gold or silver-leaf. The gold wire-drawers also use the word couch for the gold or silver leaf wherewith they cover the mass to be gilded or silvered. The gilders use the term couch, for the quantity of gold and silver leaves applied on the metals in gilding and silvering.

COUCH, or **WET-COUCH**, in malt-making. See *Malt-making*.

COUCHANT, in heraldry, is understood of a lion, or other beast, when lying down, but with his head raised, which distinguishes the posture of couchant from dormant, wherein he is supposed quite stretched out and asleep.

COUCHE,

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COUCHE, in heraldry, signifies any thing lying along: thus, chevron couche, is a chevron lying side-ways, with the two ends on one side of the shield, which should properly rest on the base.

COUCHING of a *Cataract*, in surgery, one of the two chief methods of curing a cataract, by couching with the needle. See *Cataract*.

When recourse must be had to couching, the method of treating it is as follows: Having placed the patient in a convenient light and posture, let the other eye be covered to prevent its rolling: then let the superior eye-lid of that eye affected be lifted up, and the inferior one depressed: this done, strike the needle through the tunica conjunctiva, something less than one tenth of an inch from the cornea, even with the middle of the pupil, into the posterior chamber; and gently endeavour to depress the cataract with the flat surface of it. If after it is dislodged it rises again; it must again and again be pushed down. If it is membranous, after the discharge of the fluid, the pellicle must be more broken and depressed. If it is uniformly fluid, or exceedingly elastic, they should not endanger an inflammation by a vain attempt to succeed.

After couching, it is thought proper immediately to defend the eye with a compress dipt in some collirium, secured by a handkerchief, that the retina may not be injured by a too strong action of the light; and lest, by the patient's straining his eye too soon, the cataract be elevated again. It will also be convenient to bleed the patient a few hours after the operation. With regard to the subsequent dressings, it will be necessary to repeat the former four or five times a day.

COVENANT, a compact or agreement between two or more persons to perform something.

COVENTRY, a city in Warwickshire, situate 92 miles north-west of London, and ten miles north of Warwick. It is the see of a bishop, in conjunction with Lichfield, and sends two members to parliament. Its chief trade is in the ribbon manufacture. It also gives name and title to the earls of Coventry. It is a corporation governed by a mayor, comprehending ten wards, three parish churches, a considerable grammar school, and exhibitions for both universities; besides several hospitals.

COVERING, or **ROOFING**, in architecture. See *Roof*.

CO-VERSED SINE, in geometry, the remaining part of the diameter of a circle,

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after the versed sine is taken from it. See *Versed Sine*.

COVERT-WAY, or **CORRIDOR**, in fortification, a space of ground, level with the field, on the edge of the ditch, three or four fathoms broad, ranging quite round the half moons, and other works toward the country. It has a parapet raised on a level, together with its banquets and glacis. The greatest effort in sieges, is to make a lodgment on the covert-way, because the besieged usually passade it along the middle, and undermine it on all sides.

COVERTURE, in law, the state and condition of a married woman, who is under the power of her husband, and therefore called *feme covert*, and disabled to contract with any person to the detriment of herself or husband, without his consent. If the husband alien the wife's lands, during the marriage, she cannot gainsay it while he lives; so that every thing belonging to the wife is in the power of the husband, inasmuch that she is said to have no power over her own person, but is also in that sense, *sub potestate viri*.

COUGH, *Tussis*, in medicine a convulsive motion of the diaphragm, muscles of the larynx, thorax, and abdomen, violently shaking, and expelling the air that was drawn into the lungs by inspiration.

COVIN, among lawyers, a deceitful compact between two or more persons to deceive or prejudice another.

COULTER, in husbandry, an iron instrument fixed in the beam of a plough, and serving to cut the edge of each furrow. See *Plough*.

COUNCIL, or **COUNSEL**, in a general sense, an assembly of persons to concert measures relating to the state.

Privy COUNCIL, the primum mobile of the civil government of Great Britain, bearing part of that great weight in the government which otherwise would be heavy upon the king. It is composed of eminent persons, the number at the sovereign's pleasure, who are bound by oath to advise the king to the best of their judgment, with all the fidelity and secrecy that becomes their station. The king may declare to, or conceal from, his privy council whatever he thinks fit, and has a select council out of their number commonly called the cabinet council, with whom his majesty determines such matters as are most important, and require the utmost secrecy. All proclamations from the king and the privy council, ought to be grounded on law, otherwise they are not binding to

to the subject. Privy-counsellors, have precedence of all the knights and younger sons of barons and viscounts, and are stiled right honourable.

COUNCIL of War, an assembly of the principal officers of an army or fleet, occasionally called by the general or admiral to concert measures for their conduct with regard to sieges, &c.

COUNSELLOR, in a general sense, a person who advises another: thus we say, a counsellor, at law, a privy counsellor, &c.

COUNSELLOR, at law, a person who is a barrister retained by a client to plead his cause in a public court of judicature.

COUNT, Comes, a nobleman who possesses a domain erected into a county. The dignity is a medium between that of a duke and a baron. See *Earl*.

COUNT, in law, the original declaration of complaint in a real action, as a declaration is in a personal one.

COUNTER, a term which enters into the composition of divers words of our language, and generally implies opposition; but when applied to deeds, means an exact copy kept by the contrary party, and sometimes signed by both parties.

COUNTER-APPROACHES, in fortification, lines and trenches made by the besieged, in order to attack the works of the besiegers.

COUNTER-BATTERY, a battery raised to play upon another to dismount the guns.

COUNTER-BOND, a bond of indemnification given to one who has given his bond as a security for another's payment of a debt.

COUNTER-BRACE, in naval affairs, the lee-brace of the fore-top-sail-yard: it is only distinguished by this name at the time of the ship's going about, called tacking, at which time, when the sail begins to shiver in the wind, this brace is hauled in to flatten the sail against the lee-side of the top-mast, and increase the effort of the wind in forcing her to turn round.

COUNTER-CHANGED, in heraldry, is when any field or charge is divided or parted by any line or lines of partition, consisting all interchangeably of the same tinctures.

COUNTER-CHARGE, a reciprocal charge brought against an accuser.

COUNTER-DEED, a secret writing, either before a notary or under a private seal, which destroys, invalidates, or alters a public one.

COUNTER-DRAWING, in painting, is the copying a design, or painting, by means of a fine linen cloth, an oiled paper, or other transparent matter, where the strokes appearing through are followed with a pencil, with or without colour. Sometimes it is done on glass, and with frames or nets divided into squares with silk or with thread, and also by means of instruments invented for the purpose, as the parallelogram.

COUNTER-ERMINÉ, in heraldry, the contrary to ermine, being a black field with white spots.

COUNTER-FOIL, or **COUNTER-STOCK**, in the exchequer, that part of a tally which is kept by an officer of the court. See *Tally*.

COUNTER-GUARD, in fortification, is a work raised before the point of a bastion, consisting of two long faces parallel to the faces of the bastion, making a salient angle.

COUNTER-MARCH, in military affairs, a change of the face or wings of a battalion, by which means those that were in the front came in the rear. It also signifies returning, or marching back again.

COUNTER-MARK, a mark put upon goods that have been marked before. It is also used for the several marks put upon goods belonging to several persons, to shew that they must not be opened but in the presence of them all, or their agents.

COUNTER-PALED, *Contre Pallé*, in heraldry, is when the escutcheon is divided into twelve pales parted per fesse, the two colours being counterchanged; so that the upper are of one colour, and the lower of another.

COUNTERPART, in music, one part to be applied to another. Thus the bass is said to be a counterpart to the treble. In law, the duplicate or copy of a deed.

COUNTER-PASSANT is when two lions are in a coat of arms, and the one seems to go quite the contrary way to the other.

COUNTER-PLEA, in law, a cross or contrary plea.

COUNTER-POINT, in music, the art of composing harmony, or of disposing several parts in such a manner as to make an agreeable whole, or a concert.

COUNTER-POINTED, *Contre-Pointé*, in heraldry, is when two chevrons in one escutcheon meet in the points, the one rising as usual from the base, and the other inverted falling from the chief: so that they are counter to one another in the points.

COUNTERPOISE, in the manege, is the liberty of the action and fear of a horseman; so that in all the motions made by the horse, he does not incline his body more to one side than the other, but continues in the middle of the saddle.

COUNTER-POISON, an antidote or medicine to prevent the effects of poison. See *Poison*.

COUNTER-PROOF, in rolling-press printing, a print taken off from another fresh printed; which, by being passed through the press, gives the figure of the former, but inverted.

COUNTER-QUARTERED, *Contre-écartellé*, in heraldry, denotes the escutcheon, after being quartered, to have each quarter again divided into two.

COUNTER-SCARP, in fortification, the exterior talus or slope of the ditch; but it is often taken for the covered way and the glacis. In this sense we say, the enemy have lodged themselves on the counter-scarp.

COUNTER-SIGNING, the signing the writing of a superior in quality of secretary. Thus charters are signed by the king, and countersigned by a secretary of state or lord chancellor.

COUNTER-TALLY, one of the two tallies upon which any thing is scored.

COUNTER-TENOR, called by the French, *haut-contre*, one of the middle parts of music opposite to the tenor. See *Tenor*.

COUNTER-TRIPPING is when two beasts are borne in a coat in a walking posture, the head of the one being next the tail of the other.

COUNTER, the name of a counting-board in a shop, and of a piece of metal with a stamp on it, sometimes used in playing at cards.

COUNTER of a Horse, that part of a horse's fore-hand which lies between the shoulders and under the neck.

COUNTRY, among geographers, signifies a kingdom, province, or lesser district. But its most frequent use is in contradistinction to town.

COUNTY, in geography, formerly signified the territory of a count or earl; but now it is used in the same sense with shire.

England, for its better government, and the more easy administration of justice, is divided into fifty-two counties, each of which is subdivided into rapes, lathes, wapentakes, and hundreds; and these again into tythings. For the execution of the

laws in the several counties, excepting Cumberland, Westmoreland, and Durham, every Michaelmas term officers are appointed, called sheriffs: other officers of the several counties are lord-lieutenants, custodes rotulorum, justices of the peace, bailiffs, high-constables, coroners, clerks of the market, &c. Of the fifty-two counties in England and Wales, four are termed counties-palatine, viz. Lancaster, Chester, Durham, and Ely: these counties are reckoned among the superior courts, and are privileged as to pleas; so that no inhabitant of such counties shall be compelled by any writ to appear, or answer the same, except for error, and in cases of treason, &c. The counties-palatine of Durham and Chester are by prescription, where the king's writs ought not to come, but under the seal of the counties-palatine, unless it be a writ of proclamation. There is a court of chancery in the counties-palatine of Lancaster and Durham, over which there are chancellors. See *Chancellor*.

Scotland is divided into thirty-three counties, the government of which is committed to sheriffs. See *Sheriff*.

COUNTY-CORPORATE, a title given to several cities on which the English monarchs have thought proper to bestow extraordinary privileges, annexing to them a particular territory of land, or jurisdiction, as the county of Middlesex annexed to the city of London, the county of the city of York, the county of the city of Bristol, &c.

COUNTY-COURT, a court of justice, held every month in each county, by the sheriff or his deputy.

It has the determination of debts and trespasses under forty-shillings.

COUPED, *Coupez*, in heraldry, is used to express the head, or any limb, of an animal, cut off from the trunk, smooth; distinguishing it from that which is called crazed, that is, forcibly torn off, and therefore is ragged and uneven.

COUPED, also signifies such crosses, bars, bends, chevrons, &c. as do not touch the sides of the escutcheon, but are, as it were, cut off from them.

COUPLET, a division of a hymn, ode, song, &c. wherein an equal number, or equal measure, of verses is found in each part, which division, in odes, are called strophes. See *Strophe*.

Couplet, by an abuse of the word, is frequently made to signify a couple of verses.

COURANT,

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COURANT, or CURRANT, in a general sense, expresses the present time, as we say, the year 1774 is the currant year, the first of this currant month, that is, this year and month.

COURANT, in a commercial sense, any thing that has a course, or is received in commerce, as the courrant coin, &c. also the ordinary and known price of goods, &c. in which sense we say, the price courrant.

COURIER, a messenger sent express, to carry dispatches.

COURSE, in navigation, the point of the compass on which the ship steers; or the angle intercepted between the tract of the ship and the meridian.

COURSE of Plinths, the continuity of a plinth of stone, or plaster, in the face of a building, to mark the separation of the stones.

COURSE, the time spent in learning the elements of a science; as a student is said to go through his courses of philosophy, divinity, mathematics, &c. at the university.

COURT, *Cu id*, in a law sense, the place where judges distribute justice, or exercise jurisdiction: also the assembly of judges, jury, &c. in that place.

COURT-BARON, a court that every lord of a manor has within his own precincts.

COURT of Chivalry, or the *Marshal's Court*, that whereof the judges are the lord high constable, and the earl marshal of England.

COURT of Conscience, a court in the cities of London, Westminster, and some other places, that determines matters where the debt is under forty shillings.

COURT of Delegates, a court where delegates are appointed by the king's commission, under the great seal, upon an appeal to him from the sentence of an archbishop, &c. in ecclesiastical causes; or of the court of admiralty in any marine cause.

COURT-LEET, a court ordained for the punishment of offences under high-treason against the crown.

COURT-MARTIAL, a court appointed for the punishing offences in officers, soldiers, and sailors, the powers of which is regulated by the mutiny bill.

COURT, an appendage to a house or habitation, consisting of a piece of ground, inclosed with walls, but open at top.

COURT, the palace or place where a king or sovereign prince resides.

COURTESY, or CURTESY of England, a certain tenure whereby a man mar-

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rying an heirless seized of lands of fee simple, or fee tail general, or seized as heir of the tail special, and has a child by her that comes alive into the world, though both it and his wife die forthwith: yet if she were in possession, he shall keep the land during his life, and is called *tenant per legem Angliæ*, or tenant by the courtesy of England; because this privilege is not allowed in any country except Scotland, where it is called *curialitatis Sectio*.

COUSIN, a term of relation between the children of brothers and sisters, who in the first generation are called cousins-germans, in the second generation, second cousins, &c. If sprung from the relations of the father's side, they are denominated paternal cousins, if on the mother's side, maternal.

COW, in zoology, the female of the ox kind. See *Bos* and *Ox*. The marks of a good cow, are these: the forehead should be broad, the eyes black, the horns large and clear, and the neck long and strait. The belly should be large and deep, the thighs thick, the legs round, with short joints, and the feet broad and thick. As to colour, the red cow is said to give the best milk, and the black to bring forth the best calves; but the cow that gives milk longest is the most beneficial both for breeding and profit; and the most proper time to calve in is March or April. Before calving, she should be put into good pasture, or, if it happen in winter, should be well fed with hay; and the day and night after she has calved, her drink should be a little warmed.

COW-ITCH, in botany, the English name of the hairy phaeolus. See *phaeolus*.

COW'S-LIP, *Primula Veris*. See *Primula*.

COWARD, in heraldry, a term given to a lion borne in an escutcheon with his tail doubled, or turned in between his legs.

CRAB, in naval affairs, a sort of wooden pillar let down through a ship's decks, having its lower-end resting in a socket called a sawcer: and in the upper end two or three holes above one another through the middle of it, into which long bars are let, whose length are nearly equal to the breadth of the deck. It is used to heave in the cable, or purchase any other weighty matter which requires a great mechanical power.

CRAB's CLAWS, *Chele Cancrorum*, in the materia medica, the tips of the claws of the common crab, broken off at the

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verge of the black part, so much of the extremity of the claws only being allowed to be used in medicine as is tinged with this colour. The blackness however is only superficial: they are of a greyish white within, and when levigated, furnish a tolerably white powder. Crab's claws are of the number of the alkaline absorbents, but they are superior to the generality of them in some degree, as they are found on a chemical analysis to contain a volatile urinous salt. They are always kept in the shops levigated to a fine powder, and are sometimes prescribed singly, though rarely, because of their want of the beautiful white colour of some of the others. They are the basis, however, of the famous Gascoigne-powder, the lapis contraverva, and many other of the compound sudorific powders.

CRAB'S EYES, *Oculi Cancrorum*, in pharmacy, a strong concretion in the head of the cray-fish. They are rounded on one side, and depressed and situated on the other, considerably heavy, moderately hard, and without smell.

Crab's eyes are much used both in the shop medicines and extemporaneous prescriptions, being accounted not only absorbent and drying, but also discutient and diuretic.

CRACOW, or **CRACOVIA**, the capital city of Poland, with a bishop's see. It is seated on the Vistula, and is the largest and most important city in that kingdom. The streets are broad and straight, but very filthy. The houses are five stories high, and built with free-stone, but covered with shingles. The city has two large suburbs; it is surrounded with deep ditches, encompassed with thick walls, and defended by strong towers. Augustus III. king of Poland, was crowned here, with his consort, January 17, 1734. The largest and principal church is dedicated to St. Stanislaus. The riches of this church are immense, and the offices are read in it day and night, without interruption. The Jesuits have a fine church here, as well as the Dominicans. The bishop of Cracow is in possession of the duchy of Severia and thirteen towns. In 1401, there was an university founded here, which is the most celebrated of any in Poland; it has twelve colleges; all employments, as well ecclesiastical as secular, are generally given to Poles who have been educated here. This city suffered greatly during the civil dissensions; for the plague, famine, and war, made a great havoc in it at the same time, and destroyed almost

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half of the inhabitants; besides, there was a great fire, which reduced part of the city to ashes. In 1702, the Swedes became masters of Cracow, and burnt the palace, down to the ground, which was a magnificent structure, and has not been since rebuilt. The established religion is the Roman Catholic; but they tolerate the Jews, who are said to amount here to twenty thousand. It is one hundred and fifty miles south of Buda, one hundred and eighty north-east of Vienna, and seven hundred and fifty from Paris. Long. 19. 30. E. Lat. 50. 8. N.

CRADLE, a well known machine, in which infants are rocked to sleep.

CRADLE, in surgery, a case in which a broken leg is laid after being set.

CRAMBE, wild sea-cabbage, in botany, a genus of plants which is used as an aliment like other cabbage, when very young, but is esteemed more hot and dry. Dale tells us, the leaves heal wounds, and disperse inflammations and other tumours.

CRAMP, in medicine, a convulsive contraction of a muscular part of the body, being either natural, as in convulsive constitutions, or accidental, from living in cold places, under ground, &c. It affects all parts indifferently, but the ham, calves, feet, and toes, oftener than the arms and hands: it is seldom mortal, though its returns are often quick, and continuance long, with great pain and distention of some vessels, as appears from the knots and ganglions it occasions. If it be natural, observe the cure as in an epilepsy or convulsions; if accidental, it is removed by rubbing the part affected.

CRAMP-FISH, the torpedo. See **TORPEDO**.

CRAMP-IRON, or **CRAMPS**, a piece of iron bent at each end, serving to fasten together pieces of wood, stones, or other things.

CRANE, a machine used in building and commerce, for raising large stones and other weights.

It is of two kinds; in the first, only the gibbet moves upon its axis; and in the second, called the rat-tail crane, the whole crane, with its load, turns upon its axis.

Chimney **CRANE**, a kitchen utensil used for hanging a pot or the like on; and being moveable, wafts it off and on the fire at pleasure.

CRANE, a name given to the siphon. See *Siphon*.

CRANE'S BILL, among surgeons, a kind of forceps, so called from its figure.

CRANE'S

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CRANE's BILL, in botany, the geranium.

CRANK, a contrivance in machines, in the manner of an elbow, only of a square form, projecting from a spindle, and serving by its rotation to raise and fall the pistons of engines.

CRANK, the iron support for a lantern, or the like; also the iron made fast to a stock of a bell for ringing it.

* **CRANMER**, (THOMAS) archbishop of Canterbury, was born at Allaton in the county of Nottingham; educated at Cambridge, and took the degree of doctor of divinity in 1523. Pleading for king Henry's divorce from Catharine of Spain, he so pleased the king, that he was made archdeacon of Taunton, and afterwards sent ambassador into France, Italy, and Germany, and in 1533 he was made archbishop of Canterbury. He shewed himself a zealous promoter of the reformation, and procured the convocation to petition the king that the Bible might be translated into English; encouraged the printing and publication of it. He next forwarded the dissolution of the monasteries, which was one of the greatest obstacles to the reformation. But though he had before pronounced the sentence of divorce between king Henry and queen Catharine, and had married him to Anne Boleyn, yet only three years after, viz. in 1536, he also divorced Henry from his last queen. He opposed the pope's supremacy; and yet in the year 1538, with some other of the bishop's, fell under the king's displeasure for not being willing that the monasteries should be suppressed for the king's own use.

In 1540 he was one of the commissioners for inspecting into matters of religion; he also gave orders for the taking away of superstitious shrines; and in the year 1540 procured the act for the advancement of true religion. But the following year he was complained of both in the house of commons and the privy council, when the king protected him, and gave him his ring, as a token that he took the affair into his own hands. On king Henry's decease, he was appointed one of the executors of his will, and one of the regents of the kingdom: and on the 20th of February, 1545-6, he crowned king Edward VI. to whom he had been godfather, as he was also to the lady Elizabeth. He still continued labouring for the reformation of religion: In 1550 a review was made of the Book of Common Prayer, which by his care had

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been drawn up, and several things were amended that were thought to favour too much of superstition; and in 1552 he had a share in compiling the articles of religion. In 1553 he opposed the new settlement of the crown upon the lady Jane Grey; but upon king Edward VIth's decease, appeared for that lady. Queen Mary's accession to the throne put a period to his happiness; he was presently after committed to the Tower, and condemned for high treason, of which he was however pardoned. In 1554 he, with Ridley and Latimer, were removed to Oxford, in order for a public disputation with the papists, which was held with great noise and triumph on the side of the latter; and with as much gravity, learning, and modesty on the side of the protestant bishops: two days after Cranmer and the two others were condemned as heretics; but this sentence being void in law, the pope's authority not being yet re-established in England, a new commission was sent from Rome for his trial and conviction. Accordingly on the 12th of September 1555, he appeared before the commissioners at St. Mary's church, Oxon, where he was accused of blasphemy, perjury, incontinency, and heresy, against all which he vindicated himself; and at last was cited to appear at Rome within eighty days to answer in person; but being closely confined, the pope sent his letters, in which he declared him contumacious for not appearing at Rome within the limited time, with orders that he should be degraded and deprived, which was accordingly done in the most ignominious manner.

At last, however, Cranmer's courage, wisdom, and fortitude forsook him; he had the weakness to recant, and renounce the protestant religion; but notwithstanding this, the merciless queen resolved to glut her revenge by committing him to the flames; which cruel sentence was accordingly executed on the 21st day of March 1556, when repenting of his cowardice and insincerity, he stretched out his right hand into the flame, and held it there unmoved (except that once he wiped his face with it) till it was consumed, crying with a loud voice, "This is the hand that wrote it. This hand hath offended," and often repeating, "This unworthy right hand." At last the fire blazing up, he soon expired, never stirring or crying out all the while, only keeping his eyes fixed towards heaven, and repeating more than once, "Lord Jesus,

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"Jesus, receive my spirit." Thus died this great reformer, in the sixty seventh year of his age. A person remarkable for his charity and munificence to the indigent; for his humility and affability, his wisdom and love of truth.

CRANNY, in glass-making, an iron instrument, wherewith the necks of glasses are formed.

CRAPE, in commerce, a kind of stuff, made in the manner of gauze, with raw silk, gummed and twisted in the mill.

CRASIS, among physicians, such a due mixture of qualities in a human body, as constitutes a state of health.

CRASIS, in grammar, the contraction of two letters into one long one, or a diphthong.

CRASSAMENTUM, in phycic, the thick red, or fibrous part of the blood, otherwise called cruor, in contradistinction to the serum, or aqueous part. See *Blood*.

CRATER, in astronomy, a constellation of the southern hemisphere, consisting of seven stars, according to Ptolemy's catalogue, of eight in Tycho's, and eleven in the Britannic catalogue.

CRAY-FISH, the long tailed squilla. See *Squilla*.

CRAYON, or **PASTIL**, among painters, a composition of colours, reduced to the texture of chalk; and used dry, in the form and manner of pencils, for painting on paper.

White CRAYONS.—For white crayons for common purposes, chalk, in its natural state, is superior to any composition; it should be chosen white, pure, and of the most cohering texture; and it must be cut first into squares, by means of small saws made for this use, of three inches length, and a quarter of an inch in thickness; and afterwards formed into a proper pencil-shape, by taking off the corners with a penknife, and duly sloping the point. Where an extraordinary degree of whiteness is required, a crayon may be made from flake white, as prepared by the colourmen; which being well powdered and moistened with milk, to the consistence of a paste, must be formed in a pencil-shape, and then dried, but without heat, as that would tend to injure the whiteness.

Red CRAYONS.—For red crayons of the scarlet hue, vermilion and red lead may be used, with ale-wort boiled till it appear slightly glutinous to the touch, and further inspissated by the addition of gum-tragacanth; the proportion of which

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may be a scruple to a pint of the thick wort. With this gluten, the vermilion, or red lead, must be reduced to the state of a paste, by grinding them together, and then formed into the proper shape, and dried with a gentle heat.

Where the orange cast of red lead is not particularly wanted, it is safer to use vermilion; for though red lead will stand much better used this way than in oil, yet the vermilion is still more secure, as nothing can change it without a burning heat.

The scarlet oaker gives a fouler red crayon, but yet very useful, if it be compounded with the ale-wort inspissated both by boiling and the addition of gum-tragacanth, in the proper manner directed for vermilion.

Common Indian red may be likewise treated in a parallel manner, and will give other tints of red.

Red oaker requires no composition; but if it be chosen pure, and of a good colour, will afford useful crayons by the same management as chalk.

Lake must be used for crimson crayons, and may be brought, when well ground with ale-wort, to a proper texture; but if, as is the nature of some parcels, it appear too gummy, make it up with the decoction of oat-meal, instead of the ale-wort.

It would be extremely proper to have crayons of carmine, if the price did not make the use of it too expensive: considering that circumstance, it is more expedient to use it rubbed in by a leather roller, by which it may be conveniently laid on where it may be necessary.

A small crayon compounded of the best and most scarlet lake, with about a third part of carmine, should however not be wanting. They may be worked up with milk, and a little decoction of oatmeal, with a small proportion of gum-tragacanth; but some carmine is sufficiently glutinous, and requires no binder, which ought therefore to be first tried before the binders are added.

Small crayons must likewise be made of carmine, and pearl white, in different proportions; and the ale-wort must be more or less inspissated, according to the quantity of white; but as the carmine differs greatly in different parcels as to its gummy consistence, this must be regulated by discretion.

Blue CRAYONS.—For a deep blue crayon, the darkest Prussian blue may be formed into a crayon by grinding it with the

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the decoction of oatmeal. If the tenacity be not sufficient, the ale-wort must be added.

Indico, when good, will likewise produce a deep blue crayon, with ale-wort inspissated by boiling.

For paler blues, Prussian blue of different degrees of lightness may be used with the ale-wort; but the ale-wort must be inspissated by boiling, or the addition of size or gum tragacanth, in proportion to the lightness, the darker kinds of Prussian blue being of a more glutinous nature than the lighter.

Verditer will also make a good blue crayon: but it must be used with ale-wort strongly inspissated.

Bice should likewise compose another crayon, treated as verditer.

Ultramarine being too dear to form crayons, should be used in the manner above directed for carmine.

Yellow CRAYONS.—The prepared pigment, or pigment, called king's yellow, forms the brightest and fullest coloured crayons; but the poisonous quality, and garlick scent of it, are such faults as render it on the whole much inferior to that next mentioned.

The king's yellow, may, however, be formed into a crayon with ale-wort inspissated by boiling, and the addition of gum-tragacanth; but it must be dried without any heat.

The turpeth mineral well levigated, and washed over, makes a very fine crayon, of a cool, but very bright colour. It may be treated for this end exactly in the manner above-directed for vermilion.

Dutch pink and English pink make crayons of a pretty good yellow colour; but are not so secure from tinging as the two above-mentioned.

Yellow oaker may also be formed into a crayon in the same manner as chalk; or it may be ground and washed over, and then used with the inspissated ale-wort.

Green CRAYONS.—The crystals of verdigrise, properly managed, make the brightest green crayon. They should be reduced to a very fine powder, by grinding on the stone with spirit of wine, or oil of turpentine; and then formed into a paste by ale-wort highly boiled, and inspissated still further by gum-tragacanth; but as little fluid as possible should be employed in their composition. They should likewise be dried without heat.

Prussian blue, and turpeth mineral, compounded in different proportions, form

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also a variety of good green crayons. They must be worked up with ale-wort thickened by boiling.

Verditer and turpeth mineral form a good pale green: but they require ale-wort, both thickened by boiling and the addition of gum-tragacanth.

Orange CRAYONS.—King's yellow, or turpeth mineral, with red lead, or vermilion, makes a bright orange crayon. They must be compounded with ale-wort thickened as well by gum-tragacanth as boiling.

Orange crayons may likewise be formed from Dutch or English pink, compounded with red lead, or vermilion: but the ale-wort need not, in this composition, be so strongly inspissated as for the last.

Purple CRAYONS.—A very bright purple crayon may be formed of deep Prussian blue, and carmine, compounded by means of the decoction of oatmeal: but this being expensive must be made small, and reserved only for those cases where great brightness is necessary.

Deep Prussian blue and lake, treated as the above, form a crayon next in brightness to the above.

For a less bright purple, indico may be used in the place of the Prussian blue; but the tint will not be so deep; and ale-wort slightly inspissated may be used instead of the decoction of oatmeal.

Brown CRAYONS.—For forming a full brown crayon, neither inclining to the olive or orange, mix brown oker and bistre, and work them up with the ale-wort inspissated moderately by boiling.

Spanish brown, umbre, and the com and true Indian red, may likewise be compounded in the same manner with bistre, into crayons of different tints of brown; and ivory-black may be added, where necessary, to darken them, and increase the variety.

Spanish-brown and umbre may be likewise formed alone into brown crayons; by means of the ale-wort inspissated by boiling and a small addition of gum-tragacanth.

For diluted browns, calcined fuller's earth may be employed, either alone, or mixt with chalk in different proportions. The crayons may be formed by means of ale-wort moderately inspissated by boiling.

Black and Grey CRAYONS.—Black crayons may be formed of pieces of charcoal well burnt, by putting them into a pro-

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proper shape, in the manner directed for chalk. The kind of charcoal said to be the best for this purpose, is that made from the wood of the willow.

Good black crayons may likewise be formed of ivory-black mixt with a little deep Prussian blue or indico. It must be worked up by ale-wort boiled thick, with a small addition of glover's size.

Grey crayons may be formed of the ivory, or lamp-black, mixt with chalk in different proportions, and compounded by means of ale-wort well inspissated by boiling.

CREAM, the fat unctuous part of the milk that swims upon the surface. See *Milk*.

CREAM of Tartar, in pharmacy, a preparation of tartar made in the following manner ;

Boil any quantity of crude tartar in water, till the parts which are capable of solution be entirely dissolved ; filter the liquor whilst hot through a flannel bag into an earthen-pan, and evaporate till a pellicle appears, then set it in a cold place, and suffer it to stand quietly two or three days : afterwards decant the fluid, and the crystals will be found adhering to the pan : scrape them off, and evaporate the fluid as before, and set it again to crystallise, and repeat the operation till all the crystals are formed. Cream of tartar is a gentle purge. It attenuates and resolves tough humours, and is good against obstructions of the Viscera, and in cachectic complaints. It is also a good adjunct to chalybeate medicines.

CREATION, the producing something out of nothing, which strictly and properly is the effect of the power of God alone, all other creations being only transformations, or change of shape. The creation of the world was 4004 years before Christ.

* CREATION, by letters patent, was first used by Edward III, in 1344.

CREDENTIALS, letters of recommendation, and power, more especially such as are given to ambassadors, or public ministers, by the prince that sends them to foreign courts.

CREDIBILITY, a species or kind of evidence, less indeed than absolute certainty or demonstration, but greater than mere possibility : it is nearly allied to probability, and seems to be a mean between possibility and demonstration. See *Evidence*.

CREDIT, in commerce, a mutual trust or loan of merchandize, or money, on

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the reputation of the probity and sufficiency of a dealer.

CREDITOR, one to whom any sum of money is due, either by obligation, promise, or otherwise.

CREDITOR, in book-keeping. See *Book-keeping*.

CREED, a brief summary of the articles of a Christian's belief. See *Faith*.

CREEK, that part of an haven where any thing is landed from the sea.

CREEPER, in ornithology, a name given to several species of *ipida*, otherwise called *certhia*, or *certhus*, and in English the ox-eye.

CREEPER, in naval affairs, a small instrument of iron, having a shank and four hooks or claws, and something resembling a grappling. It is used to throw into the bottom of any river or harbour, with a rope fastened to it, to hook and draw up any thing from the bottom. See *Grappling*.

CREMASTER, in anatomy, the name of a muscle of the testicle, of which there is one on each side.

CRENATED, among botanists, leaves, the edges of which are furnished with indentings, contiguous to each other, and neither inclining toward the point or base. Of these some are acute, other obtuse, &c.

CREPUSCULUM, in astronomy, twilight ; the time from the first dawn of the morning, to the rising of the sun ; and again, between the setting of the sun, and the last remains of day.

CRESCENT, *Crescens*, the new moon, which, as it begins to recede from the sun, shews a little rim of light, terminating in points, called horns, that are still increasing, till it is in opposition to the sun, at which time it is full moon, or quite round.

CRESCENT, in heraldry, a bearing in form of a new moon.

CRESS, or CRESSES, in botany, the nasturtium. See *Nasturtium*.

Indian CRESS, the cardaminum, or troxolum of botanists. See *Troxolum*.

Scitica-CRESS. See *Cardamine*.

Scitica-CRESS is also a name given to the lepidium, or dittander.

Water, or Winter-CRESS, the same with the sisymbrium. See *Sisymbrium*.

* CRESSY, *Battle of*, where the king of Bohemia's standard, with the motto *Ich Dien*, (*I serve*) was taken, and ever since used as the crest to the arms of the princes of Wales, August 16, 1346.

Edward the third, having resolved to besiege Calais, followed that route by slow marches, and halted the first night at the castle of Noyelle, from whence he detached parties to burn Crottoy and other towns in the neighbourhood. Next day he arrived at Cresly, where he encamped on an eminence, with a wood in the rear, and placed the baggage-waggons on the flanks, to secure them from the attack of the enemy. While he thus pursued his purpose with great intrepidity and deliberation, Philip imagining that he fled before his arms, resolved to overtake and chastise the fugitive, who had made such havoc in his kingdom. He accordingly marched from Abbeville towards the village of Cresly; and Edward being informed of his approach, drew up his army, consisting of thirty thousand men, in order of battle. The first line was commanded by the prince of Wales, just turned of sixteen, accompanied by the earls of Warwick and Oxford, Godfrey de Harcourt, the lords Stafford, Holland, Chandois, Clifford, with the flower of the English nobility, eight hundred men at arms, four thousand archers, and six thousand Welsh infantry. The second line was conducted by the earls of Arundel and Northampton, the lords Willoughby, Roos, Bassett of Sipcote and Multon, Sir Lewis Tuston, and a great number of gentlemen, eight thousand men at arms, four thousand halberdiers, and about half that number of archers. Those two lines were formed on the declivity of the hill in such a manner, as to support one another; and the second outflanked the first, so as to prevent its being surrounded by the enemy on the left, where it was secured by a semi-circular ditch dug in the night for this purpose, terminating in the park of Cresly, and the small brook of Maye, which waters that village. The king himself commanded the third line, posted on the brow of the eminence behind the other two, composed of seven hundred men at arms, five thousand three hundred billmen, and six thousand archers; he was attended by the lords Mortimer, Mortimer, Dagworth, Sir Hugh Hastings, and other persons of distinction. He and the prince of Wales had that morning received the sacrament with great devotion; and his behaviour denoted the calm intrepidity of invincible courage and resignation. Even the deportment of the prince of Wales, though a boy, was, in all respects, manly, he-

roic, and worthy of the great example he proposed to imitate. The army being thus arranged, the king rode from rank to rank, with a cheerful countenance, encouraging the soldiers to exert themselves for the honour of their country, the defence of their sovereign, and the preservation of their own lives; and his words, his amiable figure, and his complacency, animated them even to a degree of rapturous expectation. That they might have every motive to inspire them with extraordinary courage, he knighted fifty young gentlemen; and among the rest Sir John Beauchamp, whom he appointed to bear the royal standard in the battle. These previous dispositions being made, he ordered his men at arms to dismount, that the horses might not be fatigued before the battle began, and his soldiers to be refreshed with a plentiful meal; after which they sat down in their ranks upon the grass to take their ease, that they might be fresh and vigorous at the approach of the enemy. The French king had begun his march at sun rise from Abbeville, with an army of one hundred thousand men; and having advanced two leagues, halted to draw up his cavalry in order of battle, while the infantry continued their march. Being now at the distance of five miles from the English, he detached four knights to view the posture of the enemy, which they were permitted to survey at leisure without molestation. They were astonished at the silence, order, and composure of the English army; and one of them, who was an experienced soldier belonging to the king of Bohemia, assured Philip there was no danger of Edward's running away. He told him there was neither fear nor precipitation in the countenance of the English troops, but great serenity and resolution; he said their disposition was excellent, and their bodies in full vigour; and exhorted the king of France to advance no farther that night, but allow his infantry to refresh themselves from the fatigue of a tedious march, otherwise he would not answer for the consequences, as they were at present spent with hard duty, and moving in the utmost disorder. Philip perceived the sanity of this advice, and sent immediate orders to the van to halt, until they should receive further instructions. But his commands were very imperfectly obeyed; for his army comprehending a great number of auxiliaries conducted by inde-

pendant princes, among whom there was no subordination, they disputed the post of honour with each other, and vied in pressing forward to attack the enemy: when the front ranks halted, those who succeeded continuing to move with great impetuosity, that enormous body was pushed on towards Cressy in such confusion, as disabled them from acting with the least regularity. Even Philip himself, with the princes of the blood, were carried away by the croud, and he found it impossible to retard their motions, until they came within sight of the English. There he made shift to arrange them in three distinct bodies, the first of which, commanded by John de Luxemburgh the blind king of Bohemia, consisting of three thousand men at arms, nine and twenty thousand infantry, and fifteen thousand Genoese cross-bows, planted opposite to the English archers. The second division, conducted by Charles count of Alencon, was composed of four thousand men at arms, and twenty thousand infantry, advanced in a line with the first battalia. Philip in person commanded the third body as a reserve, consisting of twelve thousand men at arms, and fifty thousand infantry. About three in the afternoon, the French king began the battle, by ordering the Genoese to charge; but they were so fatigued with their march, that they cried out for a little rest before they should engage. The count of Alencon, being informed of their petition, rode up and reviled them as cowards, commanding them to begin the onset without delay. They advanced with great reluctance, which was increased by a heavy shower which fell that instant, and rendered their bow-strings useless; so that the discharge they made produced very little effect. On the other hand, the English archers, who had kept their bows in cases, and were favoured by a sudden gleam of sun-shine that flashed in the faces of the enemy, began to let fly their arrows so thick and with such good aim, that terrible havoc was made among the Genoese, who finding themselves exposed to certain death, without being able to annoy their enemy, began to fly with disorder and precipitation, and were trodden down by the men at arms, under the command of count Alencon. That nobleman making a wheel in order to avoid the bow-men, charged with great fury the body commanded by the prince of Wales, who sustained the shock

without flinching, and gave the count such a warm reception, that the greatest part of his men at arms was left dead upon the spot. While he maintained this conflict, the column of archers forty deep, posted on the right, which had already defeated the Genoese, was broke, by an impetuous onset of three squadrons of French and German knights, and a great body of men at arms; so that the prince was attacked both in front and flank at the same time. In this emergency, the earl of Warwick dispatched a messenger to the king, desiring him to advance to the prince's succour: Edward, whom he found in a windmill viewing the engagement, asked with great deliberation, if his son was dead, wounded, or unhorsed; and being answered in the negative, "Well then," said he, "go back and tell Warwick, that I shall not inter-meddle in the fray, but let my boy win his spurs by his own valour." He perceived the confusion of the French and their standards dropping very fast in that place where the prince was stationed, so that he concluded the enemy had miscarried in their assault; and as he had lately bestowed the honour of knighthood upon his son, he was loth to deprive him of any share of the glory. His conjecture was just: before the knight returned with his answer, the archers had closed, and the earls of Arundel and Northampton advanced with a fresh body, by which the assailants were surrounded and cut in pieces. These victorious bands, joining under prince Edward, who fought with amazing prowess, advanced to attack in their turn the main body of the enemy commanded by Philip, who had been prevented, by the disorderly flight of his first line, from coming up to sustain the troops which had broke through the English archers. Here the battle was renewed with great obstinacy; Philip in person, the king of Bohemia, and his son Charles, with a number of auxiliary princes, animating their soldiers to deeds of glory, not only by words, but by the example of their own personal prowess. Nothing, however, could resist the impetuosity and valour of the prince of Wales and his attendants. Flushed with the success he had already received from his father, under whose eye he acted in this first essay of his manhood. The blind king of Bohemia, whose ambition had for many years embroiled the best part of Europe, enquiring about the fate of the day, was told that the French were

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were in terrible disorder; a great number of noblemen slain; that his son Charles had been obliged to retire dangerously wounded; that the English had made a dreadful carnage; and that the prince of Wales bore down every thing before him with irresistible valour. John having received this information, commanded his knights to lead him into the hottest part of the battle against the young warrior. Accordingly four of his attendants placing him in the middle, and interlacing the bridles of their horses, they rushed together into the thickest of the enemy, and the blind king interchanged a few strokes with Edward; but they were soon parted, and the Bohemian, with his followers, fell in the confusion of the battle. By this time Philip himself, after two horses had been killed under him, was grievously wounded in the neck and thigh, and being carried out of the battle by John of Hainault, the standard of France was beaten down. Then all resistance was laid aside; universal rout and undistinguished carnage ensued; though a great number of the French would have escaped under favour of the approaching night, had not the king of England ordered large fires to be made upon the neighbouring hills, by the light of which the victors prevented them from rallying or uniting, and completed the slaughter. Edward, seeing the victory accomplished, descended from the hill, and running up to the prince of Wales, embraced him tenderly in the sight of the whole army, saying, "My valiant son, God grant you may persevere in the course you have so gloriously begun. You have acquitted yourself nobly; and well are you worth the kingdom that will be your inheritance." The prince made no other reply than that of a profound obeisance; and indeed his modesty and moderation were altogether surprising and unexampled. In this famous battle, which was fought on the 26th day of August, John king of Bohemia, James king of Majorca, Ralph duke of Lorraine, the counts of Alençon, Flanders, Blois, Vaudemont, Harcourt, Auxerre, Aumale, St. Pol, and Sancerre, four and twenty bannerets, twelve hundred knights, fifteen hundred gentlemen, four thousand men at arms, thirty thousand infantry, are said to have fallen, while the loss of Edward did not exceed three knights, and an inconsiderable number of soldiers. Philip attended by five knights and about sixty followers, was

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carried to the castle of La Broye, about a league from Cressy, where, having taken some refreshment, he set out at midnight for Amiens, where he arrived early next morning. The victorious Edward having founded a retreat, and ordered his men to be upon their guard all night, lest the French should rally, detached a party of archers and lancers at day light, to pursue the fugitives, and they meeting in a fog with the militia of Rouen and Beauvais, on their march to join Philip's army, routed them at the first onset. The archbishop of Rouen, and the grand prior of France advancing with a fresh reinforcement, were defeated and slain, with two thousand of their followers. The English gathering some French standards that lay scattered on the field of battle, planted them on a neighbouring hill, as a decoy to the enemy who were dispersed about the villages, and the stratagem succeeded; for they flocked in numbers to their colours, and were hewn in pieces without mercy; and indeed the only circumstance which tarnished the glory of this victory, was the order which Edward issued before the engagement, to give no quarter. The same injunction is said to have been laid upon the French army by their monarch: but this was an instance of barbarity, in which his example ought not to have been followed. Though he refused mercy to the living, he was extremely courteous to the dead: he sent the body of John, king of Bohemia, to his family; he ordered the field to be consecrated, attended the funerals of the noblemen who had lost their lives in the battle, and ordered the common soldiers to be interred with great decency. Such acts of humility and moderation, doubtless serve to dignify the character of a monarch, and perhaps to quiet any scruples of conscience that might intervene; but a prince ought to be very well satisfied with the justice of his quarrel, before he begins to shed such seas of blood, and commences the minister of horror, death, ruin, and desolation. Edward laid claim to the crown of France, to which he certainly had no right; and this whole campaign was employed in ravaging the lands, burning the habitations, and butchering the persons of the people over whom they wanted to rule.

CRESSY, in heraldry, the uppermost part of an armoury, or that part of the casque or helmet next to the mantle.

CREST, among carvers, an imagery,

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or carved work, to adorn the head, or top of any thing, like our modern cornice.

CREST-FALLEN, a fault of an horse, when the upper part of his neck, called the crest, hangs to one side: this they cure by placing it upright, clipping away the spare skin, and applying plasters to keep it in a proper position.

CHETA, chalk, in natural history. See *Chalk*.

* **CREUSA**, in fabulous history, the daughter of Creon, king of Corinth, was married to Jason, which so enraged Medea, his cast-off wife, that she destroyed several of the royal family by her incarnations.

* **CREUSA**, in fabulous history, daughter to Priam, king of Troy, was wife to Æneas, with whom she escaped at the burning of that city; but he lost her as they were making their way to embark, when she was carried away by the goddess Cybele.

CRIBATION, in pharmacy, the passing any substance through a sieve, or searce, to separate the finer particles from the grosser, whereby the body be dry, and reduced to powder, as the pulps of seeds, fruits, or roots.

CRICKET, in zoology, the gayllus. See *Gayllus*.

CRICOIDES, in anatomy, a cartilage of the larynx, called also the annular cartilage.

CRICOTHYROIDÆUS, in anatomy, one of the five proper muscles of the larynx, which arise and terminate in it. It serves occasionally either to dilate or constrict the glottis.

CRIME, *Crimen*, the transgression of a law, either natural or divine, civil or ecclesiastic.

CRIMSON. One of the seven red colours of the dyers. See *Colour*.

CRISIS, in medicine, is used in various senses, both by the antient and modern physicians. With some it means frequently no more than the excretion of any noxious substance from the body. Others take the word for a secretion of the noxious humours made in a fever. Others use it for the critical motion itself; and Galen describes a crisis in fevers, a sudden and instantaneous change, either for the better or the worse, productive of recovery or death.

CRISP LEAF, among botanists, one folded over and over, at the edges, which are always serrated, dentated, or lacerated. It is otherwise called curled.

* **CHRISTA GALLI**, in anatomy, a pro-

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cess of the os ethmoides, making the upper part of the septum narium.

CRITHE, in surgery, styte, a tubercle that grows in different parts of the eyelids. When it is small it comes only to the edge of the eyelids, or very near it, between the cilia; but when it is large it spreads towards the middle of the lid. The cure of this disease must be varied, according as the crithe is attended with an inflammation or is hardened and concreted.

CRITHMUM, samphire, in botany, a genus of plants more used as a pickle, than for any medicinal purposes: however, it is supposed to strengthen the stomach, provoke urine, and open obstructions of the bowels.

CRITICAL DAYS and SYMPTOMS, among physicians, are certain days and symptoms, in the course of acute diseases, which indicate the patient's state, and determine him either to recover or grow worse.

CRITICISM, the art of judging with propriety concerning any discourse or writing. Though the use of the word is ordinarily restrained to literary criticism, we may distinguish divers other branches of this art; as 1. Philosophical criticism, the art of judging of the hypotheses and opinions of philosophers. 2. Theological criticism, the art of judging of the means of governing, acquiring, and preserving states. 4. Grammatical criticism, the art of interpreting the words of an author, &c. In short, the art of criticism, though reckoned by some as the distinct part of philosophy, is nothing else than a more correct and accurate knowledge in the other parts of it; and a readiness to apply that knowledge upon all occasions, in order to judge well of what relates to these subjects, to explain what is obscure in authors, to supply what is defective, amend what is erroneous in manuscripts or ancient copies, to correct the mistakes of authors and editors in the sense of the words, to reconcile the controversies of the learned, and by these means to spread a juster knowledge of the beautiful passages and solid reasoning of authors, among the inquisitive part of mankind.

CROCHES, among hunters, the little buds growing about the tops of a deer or hart's horns.

CROCODILE, *Crocodilus*, in zoology, a species of lizard, with a two-edged tail and triangular feet, the fore ones having five, and the hinder ones only four toes. This is the largest of the lizard kind, growing to twenty-five feet in length, and about the

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the thickness of a man's body. It is a native of the torrid zone frequenting salt-water rivers, where it lies concealed among the reeds or rushes, till it finds an opportunity to seize men or other animals, which it drags into the water, always taking this method of drowning them first, that it may afterwards devour them without resistance: its general food, however, is fish. The Africans and Indians eat its flesh, which is white; and of a kind of perfumed flavour.

CROCUS, saffron, in botany, a genus of plants, with narrow grass-like leaves, which have a white line running along the middle: the stalk is short and undivided, and bears on the top a purplish blue flower, deeply cut into six segments: in the middle of the flower arises, among the stamina, a whitish pistil, divided at the top into three chives or fleshy filaments, the lower part of which is slender and pale-coloured, the upper broader, of a deep orange red, and very finely indented about the sides: these filaments, carefully picked, and pressed together into cakes, are the saffron of the shops. The plant is perennial, and flowers in autumn: the common spring crocuses of our gardens are reckoned by Linnaeus to be no other than varieties of it. Saffron is cultivated in different parts of the world: that produced in England is greatly superior to the sorts brought from abroad, and may be distinguished from them by its blade being made broader. It should be chosen fresh, not above a year old, in close cakes, neither dry nor yet very moist, tough and firm in tearing, of a high fiery colour, and of the same colour within as on the outside.

Saffron is a very elegant and useful aromatic: of a strong penetrating, diffusive smell, and a warm, pungent, bitterish taste. It is supposed to have a considerable degree of anodyne power, depending on its subtle odorous principle; to be more cordial and more exhilarating than almost any other of the aromatics, so as, when taken too freely, to occasion even immoderate mirth; to be particularly serviceable in disorders of the breast, in female obstructions, and hysteric depressions. It tinges the urine of a high colour. The dose is commonly from two or three grains to ten or twelve: Geoffroy says it may be extended with safety to a scruple and more.

The officinal tinctures are made with sack or French brandy, in the proportion of an ounce to a pint; by dissolving in the vinous tincture a proper quantity of fine sugar, twenty-five ounces to a pint, an ele-

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gant cordial syrup is obtained. Tinctures drawn with vinegar, or other liquors sensibly acid, soon lose of their rich colour in keeping: the colour of the vinous tinctures also fades a little, and a part of the dissolved saffron is apt to be in time thrown off: those made in proof spirit, and in rectified spirit, particularly the latter, may be kept in perfection for years.

CROCUS, in chemistry, any metal calcined to a deep or yellow colour: thus we meet with *crocus martis aperiens* & *astringens*, or the aperient and astringent crocuses of iron; also with the *crocus veneris*, or copper calcined to such a reddish powder.

CROCUS METALLORUM, an emetic preparation of antimony and nitre thus made: Take an equal quantity of each, powder them separately, then mixing them well together, throw the mixture, by degrees into a red-hot crucible, where it is to remain till melted thoroughly: this, after being separated from the scoriae, is to be kept for use. By boiling this crude crocus, first reduced to a fine powder, in water, and afterwards washing it with more hot water, till it comes off insipid, is obtained the washed crocus of antimony.

CROFT, a little close or field, adjoining to a dwelling-house, and enclosed for pasture or arable land.

CROISADE, **CRUSADE**, or **CRUZADO**, a name given to the expeditions of the Christians against the infidels, for the conquest of Palestine; so called because those who engaged in the undertaking, wore a cross on their cloaths, and bore one on their standard.

CROISSANTE, in heraldry, is said of a cross, the ends of which are fashioned like a crescent or half-moon.

* **CROMWELL**, (THOMAS) earl of Essex, an eminent statesman in the sixteenth century, was the son of a blacksmith at Putney, near London, who was in his latter days a brewer. He was educated in a private school, where he learned accounts, and a little Latin; but afterwards travelling, he seized the opportunity of learning several languages. Coming to Antwerp, where was then a considerable English factory, he was retained to be their clerk; and afterwards he embraced an opportunity that offered in 1510, of taking a journey to Rome. While he remained in Italy, he served for some time as a soldier under the duke of Bourbon: and at Holognè assisted John Russell, afterwards earl of Bedford, in making his escape, when he was in danger of being taken by the French. On his return from his travels, he was taken into the

service of cardinal Wolsey; who, observing his great parts made him his solicitor, and often employed him in affairs of great importance. In return for these favours, Cromwell defended his master in the house of Commons, of which he was then a member, with great wit and eloquence. After the Cardinal's death, he was taken into the King's service. In 1531, he was knighted, made master of the king's jewel-house, and a privy-counsellor. The next year he was made clerk of the hanaper, and chancellor of the exchequer. In 1534, he was made principal secretary of state, and master of the rolls; and the next year appointed visitor-general of the monasteries throughout England, in order for their suppression. In 1536, he was made lord-keeper of the privy seal, when he resigned his mastership of the rolls. The same year he was advanced to the dignity of a baron, by the title of Cromwell, lord Oakham, in Rutlandshire; and also made vicar-general, and vicegerent over all the spiritualities under the king, who was declared supreme head of the church. Having been highly instrumental in promoting a reformation, and pulling down the monasteries, he was, in 1539, rewarded with many noble manors belonging to those dissolved houses; and, on the 17th of April, the same year, was advanced to the dignity of earl of Essex. At length, using his utmost endeavours to procure a marriage between king Henry the Eighth, and Anne of Cleves, whose friends were Lutherans, as the most effectual method to secure both himself and the protestant religion, this very step produced his destruction; for the king, not liking the queen, took an invincible aversion to Cromwell, and several articles being brought against him, resolved to give him up; and having caused him to be arrested at the council-table, sent him to the Tower: when a bill of attainder having passed both houses, he was brought to a scaffold, on Tower-hill, where he was beheaded, on the 28th of July, 1540. Thus fell Thomas lord Cromwell, though it was said there was not a man in England who possessed so many virtues.

* CROMWELL, (OLIVER) lord protector of England, one of the great generals and politicians that this country has produced, was the son of Robert Cromwell, the second son of Sir Henry Cromwell of Hinchinbrooke, in the county of Huntingdon, knight, and was born at Huntingdon the 24th of April 1599. He studied some time at Sydney college, Cambridge, and afterwards removed to Lincoln's

Inn, London, after which he married, and settled at Huntingdon till the death of his uncle sir Thomas Stuart, who left him an estate of between four and five hundred pounds a year, which induced him to remove to the Isle of Ely, about which time he began to leave the church and converse with the puritans. He was elected a member of the third parliament of king Charles I. which met January 20, 1628; and having spent part of his estate in returning sums of money he had formerly won at play, resolved in 1637 to go and settle with his wife and family in New England, but was stopped by a proclamation for restraining such embarkations. He was afterwards chosen member for Cambridge in the long parliament. As soon as the parliament formed schemes of raising forces for their service, which was at the beginning of the year 1642, he immediately went to Cambridge, where he raised a very good troop of horse; and having soon taken a large quantity of arms and ammunition from the royalists, he increased his forces, and was in a short time at the head of a thousand horse, with the title of colonel Cromwell. Cromwell being very active in the parliament's service, was soon after appointed lieutenant-general of horse under the earl of Manchester, who joining the Scots, enabled them to reduce York: and in the battle of Marston-Moor it is unanimously agreed that Cromwell's cavalry, who were commonly styled Ironsides, changed the fortune of the day. Cromwell's reputation increasing, he was appointed lieutenant-general of the army, when after several victories he gained the battle of Naseby; and this, with other successes, soon put an end to the war. In short, the unhappy king was delivered up by the Scots. Cromwell and the parliament entered into a treaty with him; but that prince's secret designs being discovered by Cromwell's vigilance, and that of his spies, he found his own safety made it necessary to change his conduct. After various turns the king was brought to his trial, Cromwell himself being one of the high court of justice, and principally concerned in his death. The house of lords was now declared useless, and a council of state appointed to govern the nation. Cromwell, after quelling several mutinies in his army, was, in the year 1649, sent general into Ireland, where in about nine months he subdued almost that whole kingdom, and leaving his son Ireton to complete the conquest, returned to England, where he was made general in the room of lord Fairfax. He then went to Scotland,

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Scotland, routed the Scots army at Denbar, took Edinburgh, Leith, and other places, pursued king Charles II's army to England, defeated it at Worcester, September 3, 1651, and returned to London, where the parliament settled four thousand pounds a year upon him. He began now to complain of the long parliament, which on the 20th of April, 1653, he dissolved by force, and two days after published a declaration of his reasons, signed by himself and his council of officers. July 24, he called a parliament, and by an instrument constituted them the supreme authority; and on the 13th of December following, they resigned their powers to him, and an instrument of government was drawn up, by which he was declared lord protector of the common wealth of England, Scotland, and Ireland, and December 16 he was installed. He now applied himself to the management of the several parties; he supplied the benches of the courts of Westminster with the ablest lawyers, but acted in the most arbitrary and oppressive manner, where his own interest was concerned. He however made himself feared and courted by all the powers of Europe; and having raised the glory of England to its highest pitch, died on the third of September 1658, in the sixtieth year of his age.

* CROMARTIE, (Earl of,) was beheaded on Tower-hill for treason, in 1746.

CROSIER, or CROZIER, a shepherd's crook; a symbol of pastoral authority, consisting of a gold or silver staff, crooked at the top, carried occasionally before bishops or abbots, and held in the hand when they give the solemn benedictions. The custom of bearing a pastoral staff before the bishops is very ancient. Regular abbots are allowed to officiate with a mitre and crozier. Among the Greeks none but a patriarch had a right to a crozier.

CROSIER, in astronomy, four stars in the southern hemisphere, in the form of a cross, serving those who sail in south latitudes to find the antarctic pole.

CROSLET, in heraldry, is when a cross is crossed again at a small distance from each of the ends.

CROSS, *Cruz*, in antiquity, a species of punishment, or rather the instrument wherewith it was inflicted; consisting of two pieces of wood crossing each other.

CROSS, in heraldry, an ordinary composed of four-fold lines, whereof two are perpendicular, and the other two transverse; for so we must conceive of them, though they are not drawn throughout, but meet

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by couples, in four right angles, near about the fesse-point of the escutcheon.

CROSS-JACK, in naval affairs, a sail extended on the lower-yard of the mizen-mast, called hence the cross-jack yard. This sail is very seldom used.

CROSSELET, a little or diminutive cross, used in heraldry, where the shield is frequently seen covered with crosselets; also fesses and other honourable ordinaries, charged or accompanied with crosselets. Crosses frequently terminate in crosselets.

CROTAPHITES, in anatomy, a muscle of the lower jaw, serving to draw it upwards.

CROTCHES, in naval architecture, certain crooked timbers in the after-hold, on which to form the narrower parts of a ship as she approaches to the stern.

CROTCHES, certain crooked pieces of wood or iron, fixed in different places of the ship in order to support the spare masts, &c.

CROTCHET, in music, one of the notes or characters of time, marked thus

↑, equal to half a minim, and double of a quaver. See *Character, Minim, and Quaver*. A dotted to the crochet increases its time by one half, that is, makes it equal to a crotchet and a half.

CROTCHET, in printing, a sort of strait or curved line, always turned up at each extreme: serving to link such articles as are to be read together; and used in analytical tables, &c. for facilitating the divisions and subdivision of any subject, generally expressed thus }

CROCHETS are also marks or characters, serving to inclose a word or sentence, which is distinguished from the rest, being generally in this form [] or this ().

CROTP of a Horse, in the menage, the extremity of the reins above the hips.

CROUPADE, in the menage, a leap, in which the horse pulls up his hind legs, as if he drew them up to his belly. Croupades differ from caprioles and balotades, in this, that in croupades the horse does not jerk, as he does in the other two airs.

CROW, in ornithology, a species of corvus, about the size of the largest tame pigeon, and of a fine deep black colour, with large eyes and reflex bristles at the nostrils.

Roysten CROW, another species of corvus, with the body grey, the head, throat, wings, and tail, black.

CROW,

CROW, in mechanics, an iron lever with a claw at one end, and a sharp point at the other; used for heaving great weights.

CROW's Bill, among surgeons, a kind of forceps for drawing bullets, &c. out of wounds.

CROW's FEET, in the military art, machines of iron, having four points each about three or four inches long, so made that whatever way they fall, there is still a point up: they are thrown upon breaches or in passes where the enemy's cavalry are to march, proving very troublesome by running into the horse's feet and laming them.

CROWN, an ornament worn on the head by kings, sovereign princes, and noblemen, as a mark of their dignity. The Roman emperors had four kinds of crowns, still seen on medals, a crown of laurel, a radial or radiating crown, a crown adorned with pearls and precious stones, and the fourth a kind of bonnet or cap, something like the mortar. The Romans had also various kinds of crowns, which they distributed as rewards of military achievements; as, 1. The oval crown, made of myrtle, and bestowed upon generals who were entitled to the honours of the lesser triumph, called ovation. 2. The naval or rostral crown, composed of a circle of gold, with ornaments representing beaks of ships, and given to the captain who first grappled, or the soldier who first boarded, an enemy's ship. 3. The crown, called in Latin, *vallaris*, or *castrensis*, a circle of gold raised with jewels or palisades; the reward of him who first forced the enemy's intrenchments. 4. The mural crown, a circle of gold indented and embattled; given to him who first mounted the wall of a besieged place, and there lodged a standard. 5. The civic crown, made of the branch of a green oak, and given to him who had saved the life of a citizen. 6. The triumphal crown, consisting at first of wreaths of laurel, but afterwards made of gold; proper to such generals as had the honour of a triumph. 7. The crown called *obdionalis*, or *graminea*, made of grass growing on the place; the reward of a general who had delivered a Roman army from a siege. 8. The crown of laurel, given by the Greeks to their athletes; and by the Romans to those who had negotiated or confirmed a peace with an enemy: this was the least honourable of all.

CROWN, in heraldry, is used for the representation of that ornament, in the

mantling of an armory, to express the dignity of persons.

The Imperial CROWN is a bonnet or tiara, with a semi-circle of gold, supporting a globe with a cross at top. See plate XVI. fig. 1. No. 1.

The British CROWN is adorned with four crosses, between which there are four fleurs de lis: it is covered with four diadems, which meet at a little globe supporting a cross. See fig. 1. No. 2.

The French CROWN, is a circle of eight fleurs de lis, encompassed with six diadems, bearing at top a double fleur de lis, which is the crest of France. See fig. 1. No. 3.

The Spanish CROWN is adorned with large indented leaves, and covered with diadems terminating in a globe, surmounted with a cross. See fig. 1. No. 4.

The crowns of almost all other kings are adorned with large leaves, bordered with four, six, or eight diadems, and with a globe and cross at top.

The Papal CROWN is composed of a tiara and a triple crown encompassing it, with two pendants like the bishop's mitres. These crowns represent the pretended triple capacity of the pope, a high-priest, supreme judge, and sole legislator of Christians. See fig. 1. No. 5.

An Electoral CROWN, or coronet, is a scarlet cap turned up with ermine, and closed with a semicircle of gold, all covered with pearls, with a globe at top surmounted with a golden cross. See fig. 1. No. 6.

CROWNS of the British Princes of the Blood. 1. The prince of Wales's crown consists alternately of crosses and fleurs de lis, with one arch, in the middle of which is a ball and cross, as in the royal diadem. 2. That of all the younger sons and brothers of the king, consists likewise of crosses and fleurs de lis alternately, but without any arch, or being surmounted with a globe and cross at top. 3. That of the other princes of the blood consists alternately of crosses and leaves like those in the coronet of dukes, &c. See fig. 2.

CROWNS of Noblemen, are a duke's, composed of leaves of smallage, or parsley; that of a marquis, of flowers and pearls placed alternately: an earl has no flowers about the circle, like the duke and marquis, but only points rising, and a pearl on every one of them: a viscount has neither flowers nor points raised above the circle, like the other superior degrees, but only pearls placed on the circle itself without any limited number: a baron has only six pearls



ROYAL CROWNS.

N^o 1. Imperial.



N^o 2. British.



N^o 3. French.



N^o 4. Spanish.



Fig. 2. CROWNS of the Blood Royal of Great Britain.

N^o 5. Papal.



N^o 6. Electoral.



N^o 1. Prince of Wales. N^o 2. Younger Sons



Fig. 3. CROWNS of NOBILITY.

N^o 3. Nephews.



N^o 1. Dukes.



N^o 2. Marquis's.



N^o 3. Earls.



N^o 4. Viscounts.



N^o 5. Barons.



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pearls on the golden border, not raised, to distinguish him from the earls: and the number of them limited, to shew he is inferior to the viscount. See *fig. 3.*

CROWN, in commerce, a general name for coins both foreign and domestic, which are of, or near, the value of five shillings sterling. See *Coin*.

CROWN, in architecture, the uppermost member of the cornice, called also corona, and iarnier. See *Corona* and *Larnier*.

CROWN, in astronomy, a name given to two constellations, the one called borealis, the other meridionalis. See *Corona*.

CROWN, in geometry, a plane ring included between two concentric perimeters, and is generated by the motion of some part of a right line round a center, the said moving part not being contiguous to the center.

The area of a crown will be had by multiplying its breadth by the length of the middle periphery; for a series of terms in arithmetic progression being $n \times \frac{a+w}{2}$, that

is, the sum of the first and last multiplied by half the number of terms, the middle element must be $\frac{a+w}{2}$; wherefore that

multiplied by the breadth, or sum of all the two terms, will give the crown.

CROWN of Colours, certain coloured rings which like halos appear about the body of the sun or moon, but of the colours of the rainbow, and at a less distance than the common halos. These crowns Sir Isaac Newton shews to be made by the sun's shining in a fine day, or the moon in a clear night, through a thin cloud of globules of water or hail, all of the same bigness.

CROWN-OFFICE, an office belonging to the King's bench-court, of which the king's coroner or attorney is commonly master. In this office, the attorney-general and clerk of the crown exhibit informations for crimes and misdemeanors at common law, as in the case of batteries, conspiracies, libelling, &c. on which the offender is liable to pay a fine to the king.

CROWN-GLASS, the finest sort of window-glass. See *Glass*.

CROWN-WORK, in fortification, an out-work having a very large gorge, generally the length of the curtain of the place, and two long sides terminating towards the field in two demi-bastions, each of which is joined by a par-

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ticular curtain to a whole bastion, which is the head of the work. The crown-work is intended to inclose a rising ground, or to cover the head of a retrenchment.

CROWNING, in architecture, any thing that finishes a decoration. Thus a corniche, a pediment, a croteria, are called crownings.

CRUCIBLE, a chemical vessel made of earth, and so tempered and baked as to endure the greatest heat, used to melt metals, to flux minerals, ores, &c.

CRUCIFIX, a cross upon which the body of Christ is fastened in effigy, used by the Roman catholics to excite in their minds a strong idea of our Saviour's passion.

CRUCIFORM, something disposed cross-wise; but more especially used by botanists, for flowers consisting of four petals disposed in the form of a cross; such are the flowers of cabbage, rocket, wall-flower, &c. See *Flower*.

CRUDE, something that has not passed the fire, or had a proper degree of coction:

CRUDITY, among physicians, undigested substances in the stomach; humours in the body which are unconcocted, and not prepared for expulsion. There are two remarkable crudities in the stomach, the acid and nidorose. The first is when the aliments turn into a fixed acid liquamen more or less viscid, being not sufficiently attenuated and volatilized, which is the origin of chronic diseases. An acid crudity discovers itself by the heart-burn, by acid eructations in abundance, and by costiveness. It is corrected by absorbent and alkaline medicines, by volatile aromatics, &c. after which cathartics may be given: for if this method be not observed, purging medicines will not make their proper evacuations, but only cause gripings and spasms in the bowels. A nidorose crudity is when the aliments are so far corrupted, that they are turned into a putrilaginous liquamen of a very unsavoury taste and smell, which is called a nidor. It is attended with fetid eructations something like the smell of fried eggs, or stinking fish; and very often with the heart-burn, and a sort of nausea rising into the mouth from the stomach. With relation to the cure, an emetic should be given, or least the body gently purged with rhubarb and tamarinds, after which acidulated juleps are good. The crudity of the humours or morbid matter in a disease, is discovered chiefly from a fault in the quantity or quality of the circulating as well as the secret-

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of humours, as of sweat, mucus, saliva, urine, pus, blood, &c.

CRUOR, among anatomists, sometimes signifies the blood in general; sometimes only the venous blood; and sometimes extravasated, or coagulated blood.

CRUPPER, in the manege, the buttocks of a horse, the rump; also a thong of leather put under a horse's tail, and drawn up by thongs to the buckle behind the saddle, so as to keep him from casting the saddle forwards on his neck.

CRURÆUS, or **CRUREUS MUSCULUS**, in anatomy, a fleshy mass, covering almost all the fore-side of the os femoris, between the two vasti, which likewise cover the edges of this muscle on each side.

CRURAL, in anatomy, an epithet given to the artery which conveys the blood to the crura, or legs, and to the vein by which this blood returns towards the heart.

CRUS, in anatomy, that part of the body between the buttocks and the toes; it is divided into the thigh, leg, and foot. See *Thigh, Leg, and Foot*.

CRUSTACEOUS, an appellation given to animals covered with shells made up of several pieces, in contradistinction to those consisting of a single piece, called testaceous.

CRUZADO, in commerce, a Portuguese coin; struck under Alphonso V. about the year 1457, when pope Calixtus sent thither the bull for a crusade against the infidels.

CRYPTOGRAMIA, one of Linnæus's classes of plants, the organs of fructification of which are either concealed within the fruit itself, or so minute as to escape observation. To this genus belong the mosses, mushrooms, ferns, liver-worts, &c.

CRYPTOGRAPHY, the art of writing in cipher, or with sympathetic ink. See *Cipher and Ink*.

CRYSTAL, in natural history, the name of a very large class of fossils; hard, pellucid, and naturally colourless; of regularly angular figures, composed of simple, not filamentous plates; not flexible nor elastic, giving fire with steel; not fermenting in acid menstrua, and calcining in a strong fire.

CRYSTAL, is used for a factitious body, cast in glass-houses, called crystal-glass; being no more than glass carried, in the composition and manufacture, to a greater perfection than the common glass.

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CRYSTALS, in chemistry, salts or other matters congealed, in the manner of crystal.

CRYSTALS of Silver, or Lunar Crystals, are silver reduced into the form of salts, by the pointed acids of spirit of nitre. These crystals are like the solutions of an immediate caustic; they burn the skin on the slightest touch.

CRYSTALLI, among physicians eruptions about the size of a lupin, white and transparent, which sometimes break out all over the body.

CRYSTALLINE, composed of, or resembling crystal. See *Crystal*.

CRYSTALLINE HUMOUR, in anatomy, a thick, compact humour, in form of a flattish convex lens, situated in the middle of the eye, serving to make that refraction of the rays of light, necessary to make them meet in the retina, and form an image thereon, whereby vision may be performed. See *Eye*.

CRYSTALLIZATION, in chemistry, the reducing salts to their proper specific or crystalline form. To understand this definition, it is necessary previously to know, that it is a property of all kinds of salts, when dissolved in such a quantity of water as is not sufficient to keep them in that state, and prevent their coalescence, to form themselves into similar figures of a peculiar kind, each according to its species; and these having, in several instances, the exact resemblance of crystals, gave occasion to their borrowing that name. Saturation is affected by the difference of the quantities of salts which hot and cold water will dissolve.

The intentional end of crystallization is to render the salts pure and distinguishable, as well by freeing them from feculencies, and giving them their proper form, as by separating each kind from every other with which it may happen to be mixed. This it effectuates completely, if well executed; and it is attended with this particular advantage, that in this state the species of any salt may certainly be distinguished, in general, by the appearance only. The manner of performing it is, to make a saturate solution of the salts in boiling water, either by adding the salts, if dry, to the water; or by evaporating the redundant water, if they were before dissolved, and then putting the solution into a proper vessel, and suffering it to rest in a cool place till the crystals are formed, which is perfected in a longer or shorter time, according to the degree of heat or cold of

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of the weather. This is all that is necessary when the salts are pure; but if they are mixed with any heterogeneous matter, or feculencies, it is requisite, that, before the solution is set to shoot, filtration should be used.

There is no particular form necessary for the vessels which are employed in crystallization; provided they be such that the crystals may be commodiously taken out. But it is very proper to have regard to the substance of which they are made, as well in respect of those used for the solution, as those for the crystallization; otherwise a corrosion of the vessel, and consequent depravation of the salts, or an unnecessary waste thereof, will frequently happen.

CRYSTALLOIDES, the crystalline tunic of the eye; a fine membrane containing the crystalline humour.

CUB, a bear's whelp. Among hunters, a fox and marten of the first year, are called cubs.

* **CUBA**, an island of North America, at the entrance of the gulph of Mexico, about three hundred and sixty miles long, and ninety broad. Christopher Columbus discovered it the second voyage he made to America. The air is pretty wholesome, and not exceeding hot. The country is full of mountains, forests, and lakes, and yet is tolerably fruitful in several places, especially near the shore. They have a particular sort of tree, called caninnga, whose bark has the taste of cinnamon and cloves, which serves the inhabitants for spice. Some of the cedars are so large, that they serve to make canoes, which will hold forty or fifty men. The tortoises, or sea-turtles, are so large and numerous, that the Spaniards make use of them to victual their fleet, when they are homeward bound. The trees and fruits which grow here are most of them common to the West Indies; but they are remarkable for a particular sort of tobacco, of which they make Havanna snuff. The shores abound with sea fowl. They have a great number of alligators, which infest the rivers. Great numbers of cattle are killed only for their skins, and their flesh is left to rot on the ground; though some of it is dried in the sun, and is used in victualling ships. There are abundance of commodious harbours about the island; and one in particular, on the south side, where an English admiral and general landed several thousand men in 1741; but they going at an improper time, the rainy season came on, which caused a mortality among the men, and forced the

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remainder to return to Jamaica without attempting any thing. It was, however, taken by the English, in July, 1761, but was restored to the Spaniards by the peace of 1763. St. Jago is called the capital of the island; but the Havannah is much more considerable, on account of its trade, and the annual rendezvous of the galleons on their return to Spain. Cuba is about one hundred and twenty miles south of Florida, and seventy north of Jamaica.

CUBATURE of a Solid, in geometry, the measuring the space contained in it; or finding the solid contents of it.

CUBE, in geometry, a solid body consisting of six equal square sides.

The solidity of any cube is found by multiplying the superficial area of one of the sides by the height.

CUBE, or **CUBIC NUMBER**, in arithmetic, that number which is produced by multiplying any number by itself, and then again the product by that number; as 27 is a cubic number, since 3 multiplying 3 produces 9, and again, 3 multiplying 9 produces 27.

CUBE, or **CUBIC Quantity**, in algebra, the third power in a series of geometrical proportionals continued; as a is the root, aa the square, and aaa the cube. All cubic numbers may be ranged into the form of cubes; as 8 or 27, whose sides are 2 and 3, and their bases 4 and 9; whence it appears, that every true cubic number, produced from a binomial root, consists of these parts, viz. The cubes of the greater and lesser parts of the root, and of three times the square of the greater part multiplied by the lesser, and of three times the square of the lesser multiplied by the greater, as,

$$aa+2ab+bb$$

$$a+b$$

$$aa+2ab+bb$$

$$aab+2abb+bbb$$

$$aaa+3aab+3abb+bbb$$

From hence it is easy to understand both the composition of any cubic number, and the reason of the method for extracting the cube root out of any member given. See the following article.

CUBE-ROOT of any Number, or Quantity, is such a number or quantity, which, if multiplied into itself, and then the product thence arising by that number or quantity, being the cube-root, this last product shall be equal to the number or quantity whereof it is the cube-root; as 2 is the cube-root of 8; because two times 2 is 4,

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And two times 4 is 8; and $a+b$ is the cube-root of $a^3 + 3a^2b + 3ab^2 + b^3$.

CUBEBS, *Cubeba*, dried berries, greatly resembling pepper, but furnished each with a slender stalk, whence they are called by some, *piper caudatum*. Cubebs are a warm spice, of a pleasant smell, and a moderately pungent taste. Their heat and pungency are weaker than those of pepper, but of the same kind; and reside, like those of that spice, not in the volatile, but in the more fixed matter.

CUBIC Hyperbola, a figure defined by the equation $xy^2 = a^3$, having two asymptotes, and consisting of two hyperbolas lying in the adjoining angles of the asymptotes, and not in the opposite angles, like the Apollonian hyperbola, being otherwise called by Sir Isaac Newton, in his *Enumeratio Linearum Tertii Ordinis*, an hyperbolismus of a parabola; and is the sixty-fifth species of his lines, according to him.

CUBIC Parabola. See *Parabola*.

CUBIT, among the ancients, a long measure to the length of a man's arm, from the elbow to the tip of the fingers. Dr. Arbuthnot makes the English cubit equal to eighteen inches; the Roman cubit equal to 1 foot, 5,406 inches; and the cubit of the Scripture equal to 1 foot, 9,888 inches.

CUBITÆUS, in anatomy, the name of two muscles, the one called cubitæus externus, being the first of the extensor muscles of the fingers, arises from the external extuberance of the humerus, and passing its tendon under the ligamentum annulare, is inserted into the fourth bone of the metacarpus that sustains the little finger: the other is the cubitæus internus, which ariseth from the internal extuberance of the humerus, and upper part of the ulna, upon which it runs all along, till it passes under the ligamentum annulare, and is inserted, by a strong and short tendon, into the fourth of the first order of the carpus.

CUBITUS, in anatomy, a bone of the arm, reaching from the elbow to the wrist, called also the ulna.

CUBOIDES, or **OS CUBOIDES**, in anatomy, the seventh bone of the foot, so called from its resembling a cube.

CUCKOO-FLOWER, in botany, a name sometimes given a plant, more generally called cardamine, or lady's smock.

CUCULLARIS, in anatomy, a muscle of the scapula, otherwise called trape-

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zius, arising from the os occipitis, the spinose apophyses of the neck, and of the seventh and eighth of the back, terminating at the spine of the scapula.

CUCULUS, the cuckoo, in ornithology, a genus of birds, of the order of the picæ. The common cuckoo is a bird of considerable beauty, which breeds with us, but does not remain the year.

Its head, neck, and back, are of a hoary colour, with some dark grey feathers; the wings are of a brownish black, the throat of an undulated flesh colour, and the belly whitish. The colour of the female differs but very little from that of the male.

CUCUMBER, *Cucumis*, in botany, a genus of plants, whose characters are the following:

It hath a flower consisting of one single leaf, which is bell-shaped and expanded towards the top, and cut into many segments; of which some are male or barren; having no embryo, but only a large style in the middle, which is charged with the farina: others are female or fruitful, being fastened to an embryo, which is afterwards changed into a fleshy fruit, for the most part oblong and turbinate, which is divided into three or four cells inclosing many oblong seeds.

The way to raise cucumbers is so well and so generally known, that to give an account of it, is altogether unnecessary.

Wild CUCUMBER, *Cucumis*, a warty, hairy, somewhat oval fruit, not above two inches in length: the fruit, when ripe, bursts on being touched, and throws out with violence its whitish juice and its black seeds. It is sown annually, as all the preceding, in gardens. All the parts of the wild cucumber are strongly purgative: the fruit appears to be somewhat more so than the root, and this than the leaves. The juice that issues spontaneously, or by the very light pressure, on slitting the fruit when almost ripe, has an unpleasant smell, and a very durable nauseous bitter taste, on standing for a few hours, it parts into a thick matter, which settles to the bottom, and a thin watery fluid, which floats above; this last may be commodiously drained off, after the clearer part is decanted, by means of stripes of woollen cloth or skains of cotton laid over the sides of the vessel. The thick secula, dried in the sun or any other gentle heat, is a very strong, irritating, but slow cathartic; and often operates likewise upwards. It remarkably raises the pulse, and seems to kindle

kindle a degree of fever for a time: its use therefore is in cold indolent phlegmatic cases; particularly in dropsies, in which it has sometimes been given with success after medicines of a milder kind had proved ineffectual. Two or three grains are in general a sufficient dose: in some cases this quantity has acted violently; in others, five grains have procured plentiful evacuation, without much uneasiness or disturbance to the constitution.

CUCURBIT, in chemistry, an earthen or glass vessel, arising gradually from a wide bottom, and terminating in a narrow neck. This instrument is of great use in chemical distillations, digestions, and sublimations.

Blind CUCURBIT, a small inverted cucurbit, adapted to another in such a manner, that the neck of the one is inserted in that of the other. The vessel called circulatory, is one of this kind.

CUCURBITA, the gourd, in botany, a genus of plants. See *Gourd*.

CUD sometimes means the inside of the throats in beasts, and sometimes the food that they keep there, and chew over again: from whence, to chew the cud signifies, to ponder, think, or ruminate upon a thing.

CUE, among comedians, an item, or inuendo, given to the actors on the stage, what, or when to speak.

CUIRASSE, a piece of defensive armour, made of plate, serving to cover the body, from the neck to the girdle, both before and behind.

CUIRASSIERS, cavalry armed with cuirasses, as most of the Germans are: the French have a regiment of cuirassiers: but we have had none in the English army, since the Revolution.

CULLIAGE, a barbarous practice, whereby the lords of manors anciently assumed a right to the first night of their vassals' brides.

* **CULLODEN**, battle of, April 16, 1746. In the beginning of April, 1746, the duke of Cumberland began his march from Aberdeen; and on the twelfth, passed the deep and rapid river Spey, without opposition from the rebels, though a considerable number of them appeared on the opposite side. Why they did not dispute the passage, is not easy to be conceived: but, indeed, from this instance of neglect, and their subsequent conduct, we may conclude, they were under a total infatuation. His royal highness proceeded to Nairn, where he received intelligence, that

the enemy had advanced from Inverness to Culloden, about the distance of nine miles from the royal army, with intention to give him battle. On the sixteenth day of April, the duke having made the proper disposition, decamped from Nairn early in the morning, and after a march of nine miles, perceived the Highlanders drawn up in order of battle, to the number of eight thousand men, in thirteen divisions, supplied with some pieces of artillery. The royal army which were much more numerous, the duke immediately formed into three lines, disposed in excellent order; and about one o'clock in the afternoon, the cannonading began. The artillery of the rebels was ill served, and did very little execution; but that of the king's troops made dreadful havoc among the enemy. Impatient of this fire, their front line advancing to the attack, about five hundred of the clans charged the duke's left wing with their usual impetuosity. One regiment was disordered by the weight of this column: but two battalions advancing from the second line, sustained the first, and soon put a stop to their career, by a severe fire, that killed a great number. At the same time the dragoons under Hawley, and the Argyllshire militia, pulled down a park wall and covered their right flank, and falling in among them sword in hand, completed their confusion. The French piquets on their left, did not fire a shot; but, stood in active during the engagement, and afterwards surrendered themselves prisoners of war. An intire body of the clans marched off the field, in order, with their pipes playing: the rest were routed with great slaughter, and their prince was with reluctance prevailed upon to retire. In less than thirty minutes, they were totally defeated, and the field covered with dead bodies. The road, as far as Inverness, was strewed with dead bodies; and a great number of people, who, from motives of curiosity, had come to see the battle, were sacrificed to the undistinguishing vengeance of the victors. Three thousand rebels were slain on the field, and in the pursuit. The earl of Kilmarnock was taken; and in a few days lord Balmerino surrendered himself to one of the detached parties. The glory of the victory was sullied by the barbarity of the soldiers. They had been provoked by their former disgraces to the most savage thirst of revenge: not contented with the blood which was so profusely shed in the heat of action, they traversed the field after the battle, and mas-

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Sacrificed those miserable wretches who lay maimed and expiring: nay some officers acted a part in this cruel scene of assassination: the triumph of low illiberal minds, uninspired by sentiments, uninstructed by humanity. The vanquished adventurer forded the river Ness, and retired with a few horse to Aird, where he conferred with old lord Lowat: then he dismissed his followers, and wandered about a wretched and solitary fugitive among the isles and mountains, for the space of four months, during which he underwent such a series of dangers, hardships and misery, as no other person ever outlived. Thus in one short hour, all his hope vanished, and the rebellion was intirely extinguished. One would almost imagine, the conductors of this desperate enterprize had conspired their own destruction, as they certainly neglected every step that might have contributed to their safety or success. They might have opposed the duke of Cumberland at the passage of the Spey: they might have afterwards attacked his camp in the night, with a good prospect of success. As they were greatly inferior to him in number, and weakened with hunger and fatigue, they might have retired to the hills and fastnesses, where they would have found plenty of live cattle for provision, recruited their regiments, and been joined by a strong reinforcement, which was actually in full march to their assistance. But they were distracted by dissensions and jealousies; obeyed the dictates of despair, and wilfully devoted themselves to ruin and death. When the news of the battle arrived in England, the whole nation was transported with joy, and extolled the duke of Cumberland as a hero and deliverer. Both houses of parliament congratulated his majesty on this auspicious event. They decreed, in the most solemn manner, their public thanks to his royal highness, which were transmitted to him by the speakers; and the commons, by bill, added five and twenty thousand pounds per annum to his former revenue.

CULMIFEROUS Plants, in botany, such plants as have a smooth jointed stalk, usually hollow, and at each joint wrapped about with single, narrow, sharp-pointed leaves, and their seeds contained in chaffy husks, as wheat, barley, &c.

CULMINATION, in astronomy, the passage of any heavenly body over the meridian, or its greatest altitude for that day.

CULPRIT. After an indictment, for

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any criminal matter, is read in court, the prisoner at the bar is asked whether he is guilty, or not guilty, of the indictment? If he answers, not guilty, there is a replication by the clerk of the arraignments from the crown, by continuing the charge of the guilt upon him, which is expressed in the word culprit.

The term culprit is a contraction of the Latin *culpabilis* and the French *prist*; importing that he is ready to prove the criminal guilty.

CULVERIN, in the military art, a large cannon, or piece of artillery. See *Cannon*.

CULVERTAILED, among shipwrights, signifies the fastening, or letting, of one timber into another, so that they cannot slip out, as the carlings into the beams of a ship.

CUMBERLAND, a county in the north of England, separated from Scotland by Salway Frith and river. It is 75 miles in length, and 27 in breadth, and is said to contain 14,820 houses, and about 89000 inhabitants. It has one city, 14 market towns, 58 parishes, and sends six members to parliament. Carlisle is the capital. There are mines which produce lapis calaminaris, coal, copper, and black lead.

CUMMIN, *Cuminum*, an umbelliferous plant, resembling fennel, but much smaller. It is annual; a native of Egypt and Ethiopia; and cultivated in the islands of Sicily and Maltha, from whence we are supplied with the seeds.

These seeds are accounted good carminatives and stomachics: but have now in great measure, given place, for these purposes, to medicines of a more grateful kind. Their principal use is in external applications, as a warm discutient and antiseptic.

CUNEIFORM, in general an appellation given to whatever resembles a wedge.

CUNEIFORM-BONE, in anatomy, the seventh bone of the cranium, called also os basilare, and os sphenoides. See *Sphenoides-Os*.

CUNEIFORM-BONES, or **OSSA CUNEIFORMA**, are also three bones of the foot, all different in their sizes, and articulated with the os naviculare, and with the three bones of the metatarsus, viz. those which support the great toe, the second and the third.

CUNETTE, or **CUVETTE**, in fortification, a deep trench, about three or four

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four fathoms wide, sunk along the middle of a dry moat, to make the passage more difficult to the enemy.

CUNEUS, the wedge, in mechanics. See *Wedge*.

CUP, a vessel of various forms and materials, chiefly used to drink out of.

CUP among botanists. See the article *Calyx*.

CUPID, in pagan mythology, the god of love. The ancients give very different accounts of the origin of this little deity. The common opinion seems to have been that there were two Cupids, the one the son of Jupiter and Venus, whose delight it was to raise sentiments of love and virtue; and the other the son of Mars and the same goddess, who inspired base and impure desires. The first of these, called Eros, or True Love, bore golden arrows, which caused real joy, and a virtuous affection; the other, called Anteros, had leaden arrows, that raised a passion founded only on desire, which ended in satiety and disgust. Cupid was always drawn with wings, to represent his inconstancy; and naked to shew that he has nothing of his own. He was painted blind, to denote that love sees no fault in the object beloved; and with a bow and quiver of arrows, to shew his power over the mind. Sometimes he is crowned with roses; sometimes he is placed between Hercules and Mercury, to shew the prevalence of eloquence and valour in love; and at others is placed near Fortune, to signify that the success of lovers depends on that inconstant goddess.

CUPOLA, in architecture, a spherical vault; or the round top of the dome of a church, in form of a cup inverted. See *Dome*.

CUPPEL. See *Coppel*.

CUPPING, in surgery, the operation of applying cupping-glasses for the discharge of blood, and other humours, by the skin. The operation of cupping is not confined to any particular member of the body; but wherever the cupping-glass is applied, it is fixed upon the skin, either entire or scarified, and hence we have a two-fold distinction of cupping, into dry and gory.

The use of dry-cupping is two-fold, either to make a revulsion of the blood, from some particular parts affected, or else to cause a derivation of it into the affected part, upon which the glass is applied.

Dry cupping is also used, with success,

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to make a revulsion, by applying the glasses to the temples, behind the ears, or to the neck and shoulders, for the removal of pains, vertiges, and other disorders of the head: they are applied to the upper and lower limbs, to derive blood and spirits into them, when they are paralytic; and, lastly, to remove the sciatica, and other pains of the joints. The operation in these cases is to be repeated upon the part, till it looks very red, and becomes painful. In Germany and other northern countries, cupping is much oftener joined with scarification, than used alone; in which case the part is first to be cupped, till it swells and looks red, and the skin is to be punctured, or incised, by the scarifying instrument.

CUPRESSUS, the cypress tree, one of the ever-greens, and very proper to mix with pines and firs in forming clumps. The wood of the cypress is very valuable when grown to a size fit for planks, which it will do in as short a space as oaks; therefore, why should this not be cultivated for that purpose, since there are many places in England, where the soil is of a sandy or gravelly nature, and seldom produces any thing worth cultivating? Now, in such places these trees would thrive greatly, and greatly add to the pleasure of the owner, while growing, and afterwards render as much profit to his successors as perhaps the best plantation of oaks, especially should the timber prove as good here, as in the islands of the Archipelago, which there is no reason to doubt of: for we find it was so gainful a commodity to the island of Candia, that the plantations were called *Da Filia*; the selling of one of them being reckoned a daughter's portion. The timber of this tree is said to resist the worm, moth, and all putrefaction; and is said to last many hundred years. The doors of St. Peter's church at Rome were framed of this material, which lasted from Constantine the Great to pope Eugenius the Fourth's time, which was eleven hundred years, and were then found and entire, when the pope changed them for gates of brass. The coffins were made of this timber, in which, Thucydides tells us, the Athenians used to bury their heroes; and the mummy-chests, brought with those condtied bodies out of Egypt, are many of them of this wood. This tree is by many learned authors recommended for the improvement of the air, and a specific for the lungs, as sending forth great quantities of aromatic and balsamic

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balsamic scents: wherefore many of the ancient physicians of the eastern countries used to send their parents who were troubled with weak lungs, to the island of Candia, which at that time abounded with these trees, where, from the effects of the air alone, very few failed of a perfect cure.

CURATE properly signifies the parson, or vicar of a parish, who has the charge, or cure, of the parishioners souls.

CURATE also implies and is generally used for a person substituted by the incumbent to serve his cure in his stead.

CURCUMA, tumeric, a small tuberous knotty root, brought from the East-Indies: externally greyish, internally of a deep lively yellow or saffron colour, which by age changes more and more towards a red. It communicates to water its own deep yellow colour: but to rectified spirit of wine, a red. The spirituous tincture, applied upon warm marble, gives a durable red stain. Woollen cloth, impregnated with a solution of alum and tartar, acquires, on being boiled with the watery decoction, an elegant, but not very durable, orange yellow or gold coloured dye. It is rarely made use of by the dyers on account of its price and the perishableness of its colour.

CURLING, the coagulating of any fluid body, especially milk.

CURE of Souls, a benefice in the Christian church, the incumbent whereof has the direction of consciences within a parish.

CURFEW, or **COURFEW**, a signal given in cities taken in war, &c. to the inhabitants to go to bed. Pasquin says, it was so called, as being intended to advertise the people to secure themselves from the robberies and debaucheries of the night.

The most eminent curfew in England was that established by William the Conqueror, who appointed under severe penalties, that, at the ringing of a bell, at eight o'clock in the evening, every one should put out their lights and fires, and go to bed: whence, to this day, a bell, rung about that time, is called a curfew bell.

CURNOCK, a measure of corn, containing four bushels or half a quarter.

CURRAN, or **CURRANT**, in botany, a genus of plants whose characters are well known.

CURRENTS, a small kind of grapes brought principally from Zant and Cephalonia. They are open and pectoral;

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but are more used in the kitchen than in medicine.

CURRENT, or **COURRANT-MONEY**; that money which passes in commerce from one to another.

CURRENT, in hydrography, a stream or flux of water in any direction. Currents, in the sea, are either natural or general, as arising from the diurnal rotation of the earth on its axis; or accidental and particular, caused by the waters being driven against promontories, or into gulphs and straits; where, wanting room to spread, they are driven back, and thus disturb the ordinary flux of the sea. The currents are so violent under the equator, where the motion of the earth is the greatest, that they carry vessels very speedily from Africa to America; but absolutely prevent their return the same way; so that ships are forced to run as far as the 40th degree of latitude, to find a passage into Europe. In the Straights of Gibraltar, the currents almost constantly drive to the eastward, and carry ships into the Mediterranean: they are usually, too, found to drive the same way in St. George's channel. The great violence and dangerousness of the sea in the Straights of Magellan, is attributed to two contrary currents setting in, one from the south, and the other from the north sea. Dr. Halley makes it highly probable, that in the Downs, in the Straights of Gibraltar, &c. there are under currents, whereby as much water is carried out, as is brought in by the upper currents. This he argues from the oscillation between the North and South Foreland, where it runs tide and half-tide, i. e. it is either ebb or flood in that part of the Downs three hours before it is so off at sea: a certain sign, that though the tide of flood runs aloft, yet the tide of ebb runs under-foot, i. e. close by the ground; and so at the tide of ebb it will flow under-foot. This he confirms by an experiment in the Baltic Sound, communicated to him by an able seamen present at the making it: Being there with one of the king's frigates, they went with their pinnace into the mid-stream, and were carried violently by the current. Soon after that, they sunk a basket with a large cannon-bullet, to a certain depth of water, which gave check to the boat's motion; and sinking it still lower and lower, the boat was driven a-head to the windward, against the upper-current; the current aloft not being above four or five fathom deep. He added, that the lower

the basket was let down, the stronger the under-current was found.

From this principal, it is easy to account for that vast draught of water continually pouring in with the current out of the Atlantic into the Mediterranean, through the Streights of Gibraltar; a passage about twenty miles broad; yet without any sensible rising of the water along the coast of Barbary, &c. or any overflowing of the lands, which there lie very low.

The method of finding the setting and drift of a current is thus: They first fix their boat, by throwing out a triangular piece of wood, with a piece of lead fastened to it, and tied to the stem of the boat with a cord, and letting it sink sixty fathom, or more; or sometimes, by a kettle tied to the bowl, and sunk as the other: by either of these means, the boat is brought to ride as at anchor: which done the log is hove, the glass turned, and as the log line veers out, the drift of the log is set with the compass.

This shews whether there be any current, or none; and if any, which way it sets, and at what rate it drives, observing, however, to add something to the velocity for the boat's drift; for though she appears to stand still, yet, in reality, she is found to move. This addition experience has thus determined; if the line she ride be sixty fathom, a third part of the drift is to be added; if eighty fathom, a fourth; if an hundred a fifth.

If a ship sail along the direction of a current, it is evident the velocity of the current must be added to that of the vessel: if her course be directly against the current, it must be subtracted; if she sails athwart the current her motion will be compounded with that of the current, and her velocity augmented, or retarded, according to the angle of her direction with that of the direction of the current, i. e. she will proceed in the diagonal of the two lines of direction, and will describe or pass through that diagonal in the same time wherein she would have described either of the sides, by the separate forces.

CURRIERS, those who dress leather after it comes from the tan-yard. See *Skinner*.

CURRYING, the method of preparing leather with oil, tallow, &c.

CURSITOR, a clerk belonging to the court of chancery, whose business it is to make out original writs.

They are twenty-four in number, making a corporation of themselves. To each of them is allowed a division of certain counties, into which they issue out the original writs required by the subject.

CURSOR, in mathematical instruments, is any small piece in an equinoctial ring-dial that slides to the day of the month.

CURTAIN-DOUBLE, a musical wind-instrument, like the bassoon, which plays the bass to the hautboy.

CURTAIN, or **CURTIN**, in fortification. See *Curtin*.

CURTATE DISTANCE, in astronomy, the distance of a planet from the sun to that point where a perpendicular let fall from the planet meets with the ecliptic.

CURTEYN, *Curtana*, king Edward the Confessor's sword, bore before the prince at coronations: its point is said to be broken off, as an emblem of mercy.

CURTIN, **CURTAIN**, or **COURTIN**, in fortification, that part of the rampart which is betwixt the flanks of two bastions bordered with a parapet five feet high, behind which the soldiers stand to fire upon the covert-way and into the moat.

Angle of the CURTIN, that contained between the curtain and the flank.

CURVATOR COCCYGIS, in anatomy, a name given by Albinus to a muscle of the coccyx, discovered by himself, and not described by any other author.

CURVATURE of a Line, is the peculiar manner of its bending, or flexure, by which it becomes a curve of such and such peculiar properties.

CURVES, in geometry, lines which running on continually in all directions, may be cut by a right line in more points than one. The doctrine of curves, and of the figures and solids generated by them, constitute what we call the higher geometry. Curves are divided into algebraical, or geometrical, and transcendental. See *Parabola*, *Diverging*, and *Equation*.

CURVET, or **CORVET**, in the manege, an air in which the horse's legs are raised higher than in the demivolt; being a kind of leap up, and a little forwards, wherein the horse raises both his fore-legs at once, equally advanced, when he is going straight forward and not in a circle, and as his fore-legs are falling, he immediately raises his hind-legs, equally advanced, and not one before the other: so that all his four legs are in the air at once;

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once; and as he sets them down, he marks but twice with them.

CURVILINEAR, or **CURVILINEAL**, figures bounded by curves.

CUSCUTA, dodder, in botany, a genus of plants.

The ancients recommended it as purgative: however, we esteem it more as an attenuant and aperient in obstructions of the viscera, in jaundices, dropsies, and other chronic diseases.

CUSPIDATED PLANTS, in botany, such plants whose leaves are pointed like a spear.

CUSPIDATED Hyperbola, that whose points concur in the angle of contact, and there terminate. See *Hyperbola*.

CUSTOM, a term denoting the manners, ceremonies, and fashions of a people; in which sense it implies such usages as, though voluntary at first, are yet, by practice, become necessary. Custom is hence, both by lawyers and civilians, defined *lex non scripta*, a law, or right, not written, established by long usage, and the consent of our ancestors: in which sense it stands opposed to the *lex scripta*, or the written law.

CUSTOMS, the tribute or toll paid by merchants to the king, for goods exported or imported: they are otherwise called duties. See *Duty*.

CUSTOM-HOUSE, an office established by the king's authority in maritime cities, or port towns, for the receipt and management of the customs and duties of importation and exportation, imposed on merchandises.

CUSTOM-OFFICERS shall not have any ships of their own, nor may they use merchandise, factorage, nor keep a tavern.

CUSTOMARY TENANTS, in law, such tenants as hold by the custom of the manor, as their special evidence. These were anciently bond-men, or such as held *tenura bondagii*.

CUSTOS BREVIUM, the principal clerk belonging to the court of Common-pleas, whose business it is to receive and keep all the writs made returnable in that court, filing every return by itself: and at the end of each term, to receive of the prothonotaries all the records of the Nisi Prius, called the potheas.

CUSTOS ROTULORUM, an officer who has the custody of the rolls and records of the sessions of peace, and of the commission of the peace itself.

CUTANEUS, in general, an appellation given to whatever belongs to the cutis, or skin: hence we meet with cu-

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taneous caruncles, disorders, eruptions, &c. See the articles *Caruncle*, *Cutis*, *Cuticle*, *Itch*, &c.

CUTICLE, *Cuticula*, in anatomy, a thin membrane, closely lying upon the skin, or cutis, of which it seems a part, and to which it adheres very firmly, being assisted by the intervention of the corpus reticularis.

CUTICULAR, the same with cutaneous. See *Cutaneous*.

CUTIS, the skin, in anatomy, the universal integument of the body, of a substance made up of several kinds of tendinous, membranous, vascular, and nervous fibres, the intertexture of which is so much the more wonderful, as it is difficult to unfold. This texture is what we commonly call leather, and it makes the body of the skin. It is not easily torn, may be elongated in all directions, and afterwards recovers itself: on the posterior parts of the body it is thicker and more lax than on the fore-parts, and on the palms of the hands and soles of the feet, it is both very thick and very solid.

Besides several continual openings in the skin, it is perforated by an infinite number of small holes, called pores, which are of two kinds; some are more or less perceivable by the naked eye, such as the orifices of the milky ducts of the mummie, the orifices of the excretory canals of the cutaneous glands, and the passages of the hair.

The other pores are imperceptible to the naked eye, but visible through a microscope; and their existence is likewise proved by the cutaneous transpiration, and by the effect of topical applications; and from these two phenomena they have been divided into arterial and venous pores.

The outside of the skin is covered by a thin transparent web, closely joined to it, which is called epidermis, cuticula, or scarf skin.

The uses of the skin are numerous: 1. To surround, cover, and defend the parts that lie underneath it. 2. To be the organ of feeling. 3. To be an universal emunctory to the body, cleansing the blood of its redundancies, by the means of sweat and perspiration; while these, at the same time serve to prevent the acidity or driness of the cutis itself.

CUTLER, an artificer, whose business it is to forge, temper, and mount all sorts of knives, razors, shears, scissars, surgeons instruments, and sword-blades.

CUTTER, in naval affairs, a small vessel used to navigate in the channel of England:

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gland: they have commonly one mast, are rigged as sloops, and are employed in the king's service to catch smugglers.

CUTTING, in heraldry, the dividing a shield into two equal parts, from right to left, parallel to the horizon, or in the fesse-way.

CUTTING, in painting, the laying one strong lively colour over another, without any shade or softening. This hath always a disagreeable effect.

CUTTING, in surgery, operation of extracting the stone out of the human body.

CUTTING in Wood, a particular kind of sculpture, or engraving, denominated from the matter whereon it is employed. The ingenious art of cutting in wood was certainly carried to a very great height about one hundred and sixty years ago: but at present it is in very low esteem, having been long neglected, and the application of artists almost wholly employed on copper.

CUTTING OF SLIPS, in gardening, the branches or sprigs of trees, or plants, cut or slipped off, to set again, which is done in moist fine earth. The best time for this operation is from the middle of August to the middle of April. If done in the spring, let them not fail of water in the summer. In providing them, such branches as have burs, knobs, or joints, are to be cut off two or three inches beneath the burs, &c. and the leaves are to be stripped off so far as they are placed in the earth, leaving no side branch: small top sprigs of two or three years growth, are the best for this operation.

CUT-WATER, in naval architecture. See *Stem*.

CYANUS, the blue-bottle in botany, a distinct genus of plants, according to Tournefort, but is comprehended by Linnæus among the centaurea. This plant is an alexipharmic and uterine. It is said to be of use also in the king's evil, in palpitations of the heart: and a water distilled from it, is of service in an inflammation of the eyes, &c.

* **CYBELE**, in Pagan Mythology, the daughter of Cœlus and Tæra, and the wife of her brother Saturn was also called Magnatur. Thus, under the character of the elder vesta, she was represented sitting, to denote the stability of the earth; she had a drum in her lap to signify the earth's cavity, and the winds imprisoned in it: her head was crowned with towers, and she was surrounded with animals of various kinds sporting about her, to express her fruitfulness and bounty. But under the character of Cybele, she made a more magnifi-

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cent appearance, being crowned with towers, seated in a golden chariot drawn by lions, clothed with a robe wrought with flowers, and holding a key in her hand. Her parents afterwards owned her, and she fell in love with Aytis, by whom conceiving, her father caused her lover to be slain, upon which Cybele ran mad, and filled the woods with her lamentations. Soon after a plague and famine laying waste the country, the oracle was consulted, who advised them to bury Aytis with great pomp, and to worship Cybele as a goddess. On which they erected a temple to her honour, and placed lions at her feet, to denote her being educated by those animals. All the priests of Cybele were eunuchs.

CYCLE, in chronology, a certain period or series of numbers, which regularly proceed from the first to the last, and then return again to the first, and so circulate perpetually.

CYCLE of the Sun, a revolution of 28 years, which being elapsed, the dominical or Sunday letters return to their former place, and proceed in the same order as before, according to the Julian calendar. But the reformation made therein by pope Gregory, has occasioned a considerable alteration in this cycle: because every hundredth year is common, consisting only of 365 days, whereas according to the Julian account, it is bissextile, consisting of 366 days. To find the year of this cycle for any year of the Christian æra, add nine to the current year of Christ, because the cycle commenced nine years before the Christian æra, and divide the sum by 28; the quotient will shew the number of cycles which have revolved since the first year before Christ, and the remainder, if any, will shew the current year of the cycle; but if there be no remainder, it shews that it is the last or twenty-eighth year of the solar cycle. Hence the year of the cycle being known, the dominical letter, according to the Julian account, is easily found. But, as we have already observed, the series will be interrupted in the Gregorian calendar, because every fourth year is not Bissextile, as in the Julian account; therefore a table of this kind will not point the dominical letters, according to the new stile, but for that century of years, for which the table is calculated. See *Dominical Letter*.

CYCLE of the Moon, called also the golden number, and the Metonic cycle, from its inventor Meton, the Athenian is a period of 19 years, which when they are completed, the new moons and full moons return on the same days of the month, so

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that on whatever days the new and full moons fall this year, nineteen years hence they will happen on the very same days of the month, though not at the same hour, as Meteon and the fathers of the primitive church thought; and therefore, at the time of the council of Nice, when the method of finding the time for the observing the feast of Easter was established, the numbers of the lunar cycle were inserted in the calendar, which, upon the account of their excellent use, were set in golden letters, and the year of the cycle called the golden number of that year, which how to find, take the following rule:

Add one to the year of our Lord, and divide by 19, the remainder is the current year of this cycle, or golden number; but if nothing remain, it shews that it is the last year of the cycle, and, consequently, the golden number is 19.

CYCLOID, in geometry, one of the mechanical, or, as others term them, transcendental curves; called also the trochoid.

CYCLOIDAL, something belonging to a cycloid. Hence the cycloidal space is the area bounded by the cycloid and its subtense.

CYCLOPÆDIA, or **ENCYCLOPÆDIA**. See *Encyclopædia*.

CYDER, or **CIDER**, an excellent drink made of the juice of apples, especially the more curious kinds; the juice of these being esteemed more cordial and pleasant than that of the wild harsh kinds; and as it will not we presume, be disagreeable to the reader, we shall here give the method of making this liquor in Devonshire.

In order to this, it is to be observed, 1. That all the promiscuous kinds of apples that have dropped from the trees, from time to time, are to be gathered up and laid in a heap by themselves, and to be made into cyder, after having so lain about ten days.

2. Such apples as are gathered from the trees, having already acquired some degree of maturity, are likewise to be laid in a heap by themselves for about a fortnight.

3. The latter hard fruits, which are to be left on the trees till the approach of frost is apprehended, are to be laid in a separate heap, where they are to remain a month or six weeks, by which, notwithstanding frost, rain, &c. their juices will receive such a maturation, as will prepare them for a kindly fermentation, and which they could not have attained on the trees by means of the coldness of the season.

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It is observable, that the riper and mellow the fruits are at the time of collecting them into heaps, the shorter should be their continuance there; and on the contrary, the harther, immaturer, and harder they are, the longer they should rest.

These heaps should be made in an even and open part of an orchard, without any regard to covering from rain, dews, or what else may happen during the apples staying there; and whether they be carried in and broke in wet or dry wheather, the thing is all the same. If it may be objected, by some, that during their having laid together in the heap, they may have imbibed great humidity, as well from the air as from the ground, rain, dews, &c. which are mixed with their juices; the answer is, this will have no other effect than a kindly diluting natural to the fruit, by which means a speedier fermentation ensues, and all heterogeneous humid particles are thrown off.

The apples are then ground, and the pumice is received in a large open-mouthed-vessel, capable of containing as much thereof as is sufficient for one making, or one cheese. Though it has been a custom to let the pumice remain some hours in the vessel appropriated to contain it, yet that practice is by no means commendable; for if the fruits did not come ripe from the trees, or otherwise matured, the pumice, continuing in the vat too long, will acquire such harshness and coarseness from the skins as is never to be got rid of; and if the pumice is of well ripened fruit, the continuing it too long there will occasion it to contract a sharpness that very often is followed with want of spirit and pricking; nay sometimes even becomes vinegar, or always continues of a wheyish colour; all which proceeds from the height of fermentation that it almost instantly falls into on lying together; the pumice therefore should remain no longer in the vat, than until there may be enough broke for one pressing, or that all be made into a cheese, and pressed the same day it is broken.

When the cyder is pressed, and cleared from any impurities by straining it through a hair sieve, it is placed in a proper cask to be fermented. See *Fermentation*.

CYGNUS, in astronomy, a constellation of the northern hemisphere, consisting of 17 stars according to Ptolemy's catalogue, of 19 in Tycho's, and in the Britannic catalogue of 107.

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CYLINDER, in geometry, a solid. The section of every cylinder by a plane oblique to its base is an ellipsis.

The superficies of a right cylinder is equal to the periphery of the base, multiplied into the length of its side.

The solidity of a cylinder is equal to the area of its base, multiplied into its altitude.

Cylinders of the same base, and standing between the same parallels, are equal.

Every cylinder is to a spheroid inscribed in it, as 3 to 2.

If the altitudes of two right cylinders be equal to the diameters of their bases, those cylinders are to one another as the cubes of the diameters of their bases.

We have observed under the article **CIRCLE**, that if the diameter of any circle be multiplied by 3.14159,26536—, the product will be the circumference; and since every cylinder may be considered as made of an infinite number of equal circles, it follows, that as 1, to 3.14159,26536—, so is the diameter of any cylinder multiplied by the height, to the superficies of the cylinder; wherefore, if the product of the height of the cylinder into the diameter be multiplied by 3.14159,26536—, the product will give the superficies of the cylinder.

And hence it also follows, that the solidity of any cylinder is found by multiplying the area of its base by its height or altitude: putting therefore r for the radius of the base, c for the circumference, and a

for the altitude, we shall have $\frac{cra}{2}$ = the

solidity. But if the altitude be equal to the diameter, then the solidity will be $\frac{cr^2}{2}$ ×

$$2r = cr^2,$$

And because as 1, to 78539,81634—; so is the square the diameter of any circle its area. See **CIRCLE**.

CYLINDER-CHARGE, in gunnery, that part of a great gun which is possessed by the powder and ball.

CYLINDER CONCAVE, in gunnery, all the chace of a piece of ordnance.

CYLINDER VACANT, in gunnery, that part of the hollow that remains empty, after the gun is charged.

CYLINDRICAL, in the form of, or resembling, a cylinder, as, a cylindrical column, cylindrical compasses, mirrors, &c.

CYLINDROID, in geometry, a solid body approaching to the figure of a cylinder,

C Y S

der, but differing from it in some respects; as having the bases elliptical, but parallel and equal.

CYMATIUM, in architecture, a member, or moulding, of the cornice, the profile of which is waved; that is, concave at top, and convex at bottom. See **Corniche**.

CYMBAL, a musical instrument in use among the ancients. The cymbal was round, made of brass, like our kettle-drums, and, as some think, in their form, but smaller, and of different use.

CYNARA. See the article **Artichoke**.

CYNICS, a sect of ancient philosophers, who valued themselves upon their contempt of riches and state, arts and sciences, and almost every thing, except virtue or morality.

CYNIC SPASM, a kind of convulsion, wherein the patient imitates the howlings of dogs.

CYNOGLOSSUM, hound's tongue, in botany, a genus of plants, the root of which is kept in the shops, and is esteemed a pectoral and narcotic.

Some recommend it in catarrhs, the gonorrhoea, and serophulous cases.

CYNOSURA, in astronomy, a name given by the Greeks to the constellation of ursa minor. See **Ursa**.

This is the constellation next to the north pole.

CYNOSURUS, dog's-tail grass, in botany, a genus of plants, whose corolla consists of two valves; the exterior concave, longer, and aristated; the interior, plane, without any arista: the corolla surrounds the seed, which is single, of an oblong figure, and pointed at each end.

CYON. See **Cion**.

CYPHER. See **Cipher**.

CYPRESS, *Cupressus*, the English name of a genus of trees. See **Cupressus**.

CYPRINUS, in ichthyology, a very numerous genus of fishes, comprehending the roach, tench, carp, gudgeon, barbel, chub, bream, bleak, &c.

CYRENAICS, *Cyrenaici*, a sect of ancient philosophers, so called from their founder, Aristippus of Cyrene, a disciple of Socrates. The great principle of their doctrine was, that the supreme good of man in this life is pleasure; whereby they not only meant a privation of pain and a tranquillity of mind, but an assemblage of all mental and sensual pleasures, particularly the last.

CYST, the bag, or tunic, including all incysted tumours, as the schirrhus, atheroma, &c. See **Schirrhus**, **Atheroma**, &c.

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If in extracting an incised tumour, the including cyst be broke, or wounded, care must be taken to remove it, otherwise the tumour will speedily return. See *Encysted Tumours*.

Indeed if the tumour be a schirrhous, sarcoma, steatoma, or in a glandular part, the contents are hard enough to make a clean extirpation of it, notwithstanding its including coats be wounded: but when the matter of the tumour is soft or fluid, by its escaping, the tumour will become flaccid, so that it will hardly be possible to make a clean extirpation of the cyst, without leaving some fragment behind, which must in that case be brought away by dressing the abscess with digestives, &c. See *Abscess*.

CYSTIC, a name given to two arteries and two veins opening into the gall-bladder.

CYSTIC DUCT, *Cysticus Ductus*, a pipe that goes into the neck of the cystis, or gall bladder.

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CYSTIC BILE, one of the two kinds of bile, being distinguished into the cystic and hepatic bile. The cystic bile is very bitter, thicker, and more coloured than the hepatic.

CYSTIS, in anatomy, the same with vesicula, or bladders. See *Bladder* and *Vesicula*.

CYSTUS, in botany, a name anciently given to the alkekengi. See *Alkekengi*.

CYTISO-GENISTA, in botany. See *Ginista*.

CZAR, a title of honour assumed by the emperors of Russia. No doubt but this title was taken by corruption, from cæsar, emperor; and accordingly they bear an eagle, as the symbol of their empire, and the word **CÆSAR** in their arms: yet they make a distinction between czar and cæsar, the first being taken for the king's name, and the other for the emperor's.



End of the FIRST VOLUME.

